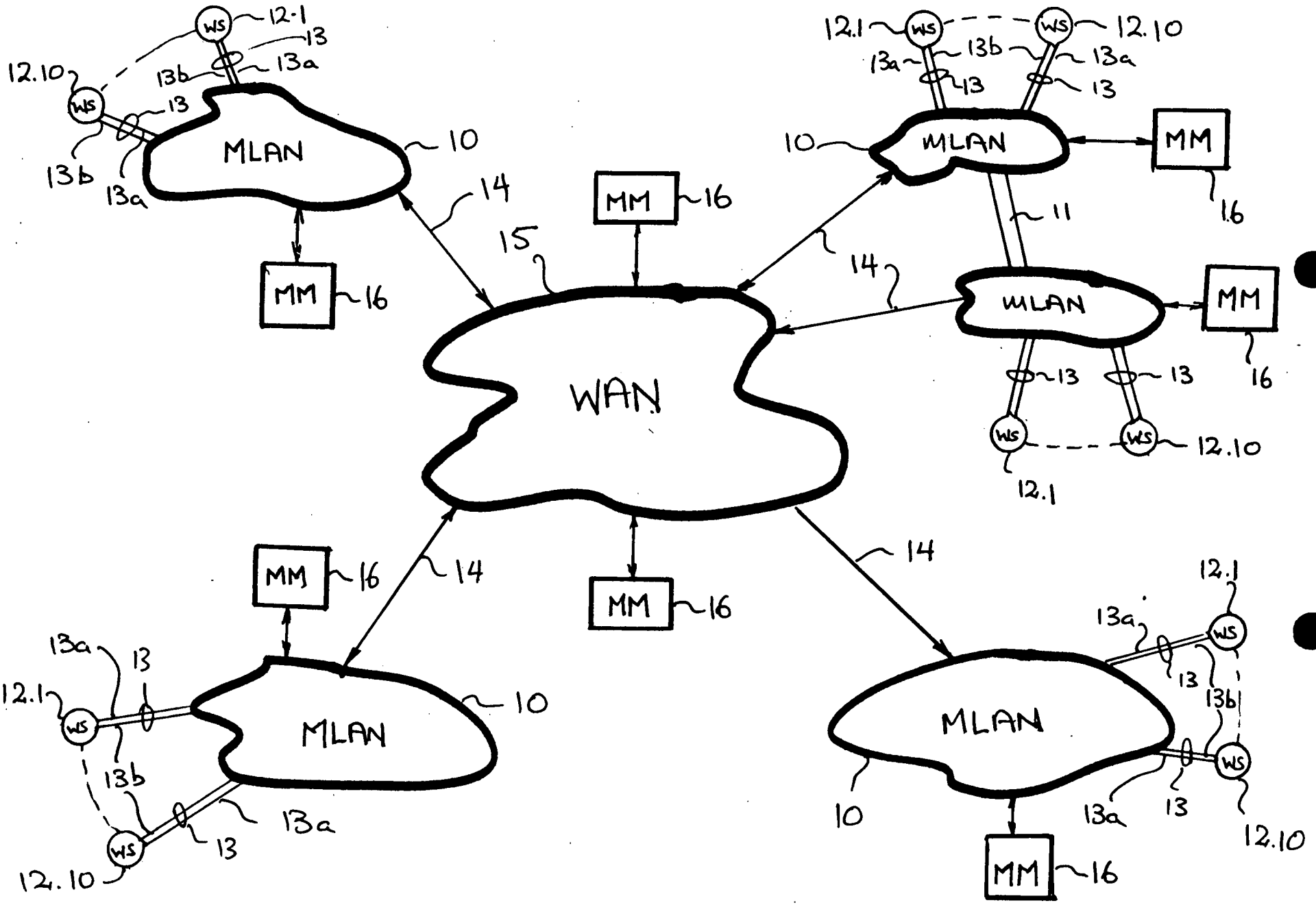



FIGURE 1

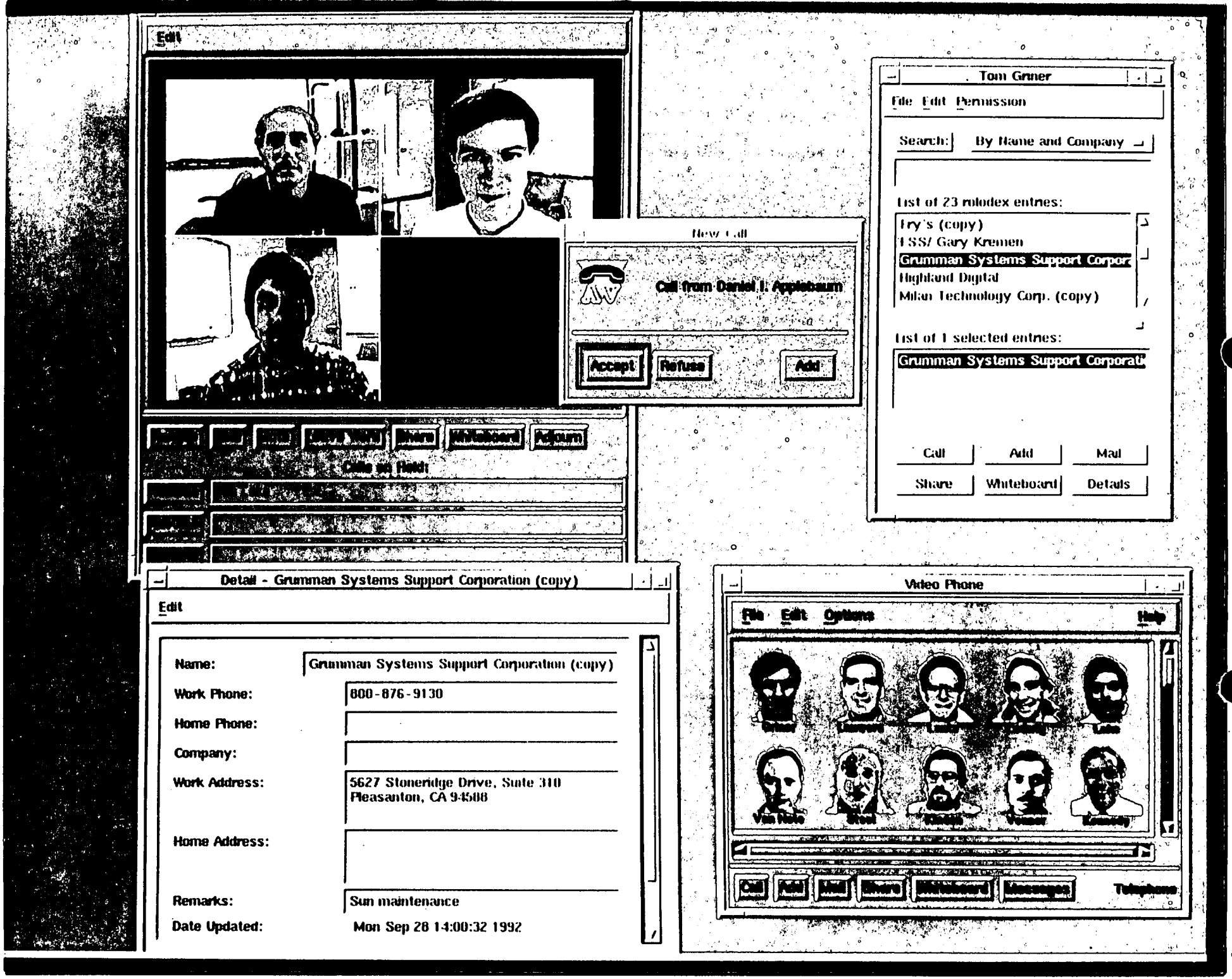

Edit
New Call
Call from Daniel J. Appelbaum
Accept
Refuse
Add
Tom Griner
File Edit Permission
Search:
By Name and Company
List of 23 rolodex entries:
Try's (copy)
ISS/ Gary Kremen
Grumman Systems Support Corpor
Highland Digital
Milan Technology Corp. (copy)
List of 1 selected entries:
Grumman Systems Support Corporati
Call
Add
Mail
Share
Whiteboard
Details
Detail - Grumman Systems Support Corporation (copy)
Edit
Name:
Grumman Systems Support Corporation (copy)
Work Phone:
800-876-9130
Home Phone:
Company:
Work Address:
5627 Stoneridge Drive, Suite 310
Pleasanton, CA 94588
Home Address:
Remarks:
Sun maintenance
Date Updated:
Mon Sep 28 14:00:32 1992
Video Phone
File Edit Options Help
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 2A

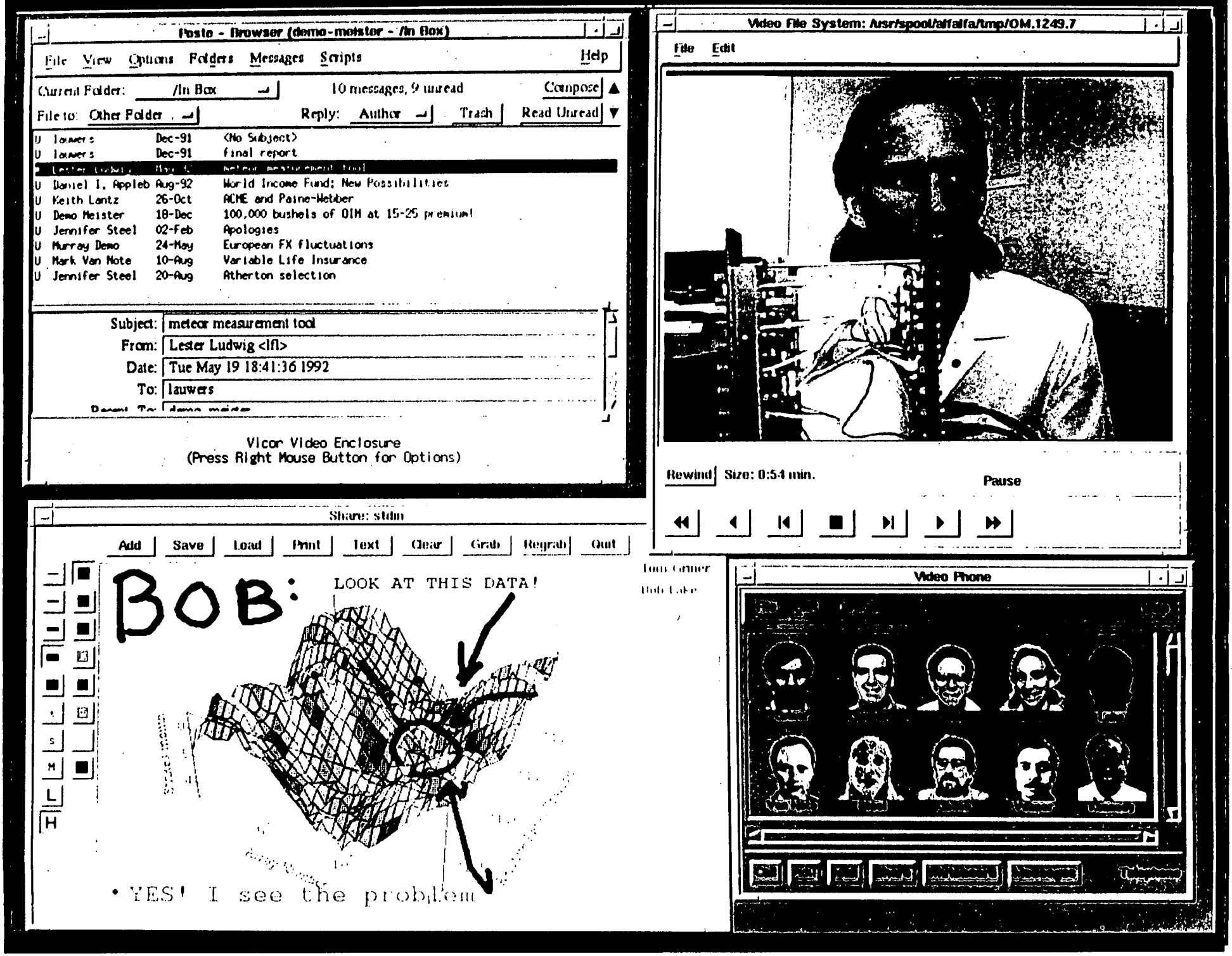

Poste - Browser (demo-meister - /In Box)
File View Options Folders Messages Scripts Help
Current Folder: /In Box
10 messages, 9 unread
Compose
File to: Other Folder
Reply: Author
Trash
Read Unread
U lauwers Dec-91 <No Subject>
U lauwers Dec-91 final report
U Daniel I. Appleb Aug-92 World Income Fund: New Possibilities
U Keith Lantz 26-Oct ACME and Paine-Webber
U Demo Meister 18-Dec 100,000 bushels of OIH at 15-25 premium
U Jennifer Steel 02-Feb Apologies
U Murray Demo 24-May European FX fluctuations
U Mark Van Note 10-Aug Variable Life Insurance
U Jennifer Steel 20-Aug Atherton selection
Subject: meteor measurement tool
From: Lester Ludwig <lfl>
Date: Tue May 19 18:41:36 1992
To: lauwers
Vicor Video Enclosure
(Press Right Mouse Button for Options)
Video File System: /usr/spool/alfalfa/tmp/OM.1249.7
File Edit
Rewind
Size: 0:54 min.
Pause
Share: stdin
Add Save Load Print Text Clear Grab Regrab Quit
BOB:
LOOK AT THIS DATA!
• YES! I see the problem
Video Phone

FIGURE 2B

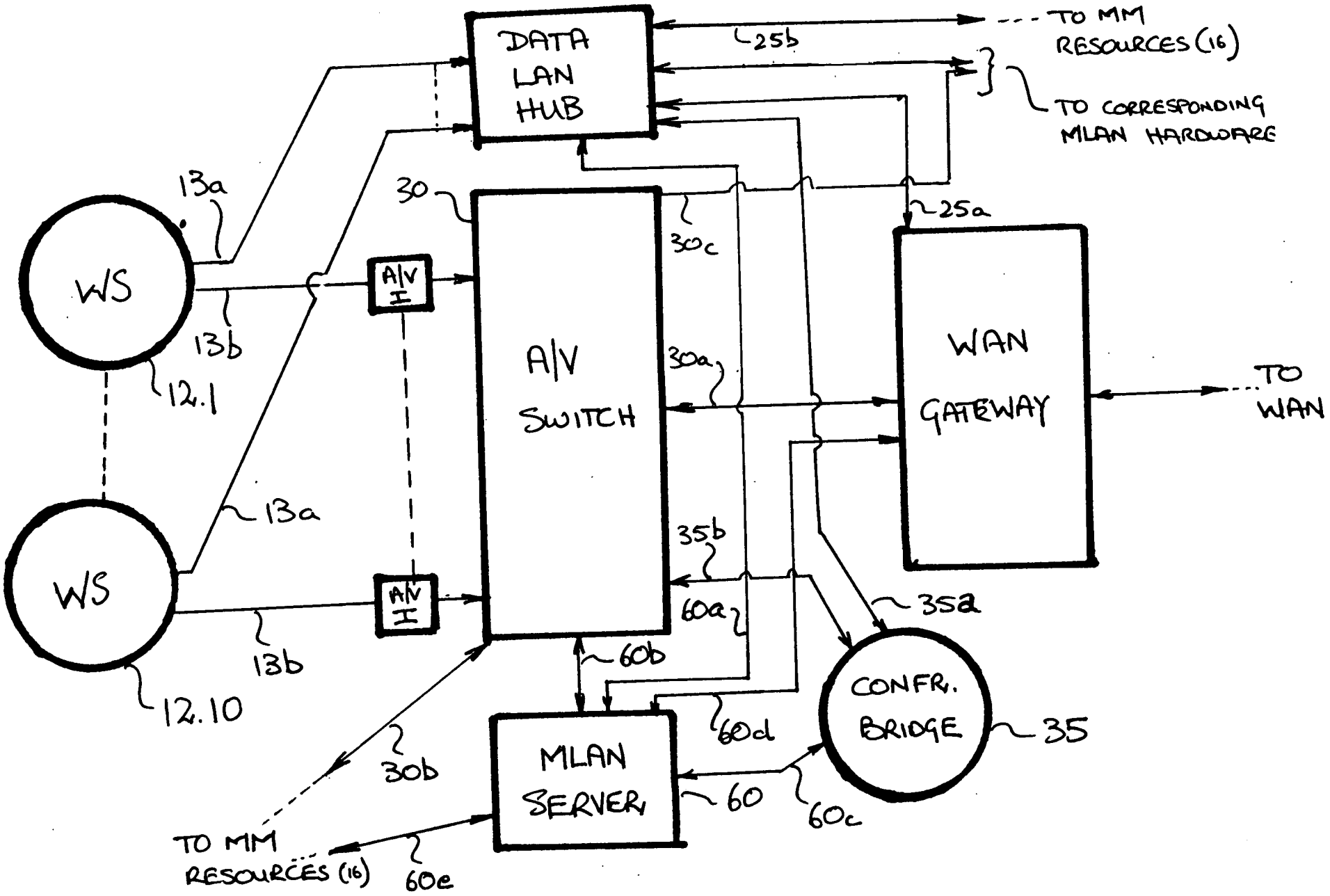

DATA LAN HUB
25b
TO MM RESOURCES (16)
TO CORRESPONDING MLAN HARDWARE
13a
30
30c
25a
WS
A/V I
13b
12.1
A/V SWITCH
30a
WAN GATEWAY
TO WAN
13a
35b
WS
A/V I
35a
60a
13b
60b
CONFR. BRIDGE
35
12.10
60d
30b
MLAN SERVER
60
60c
TO MM RESOURCES (16)
60e

FIGURE 3

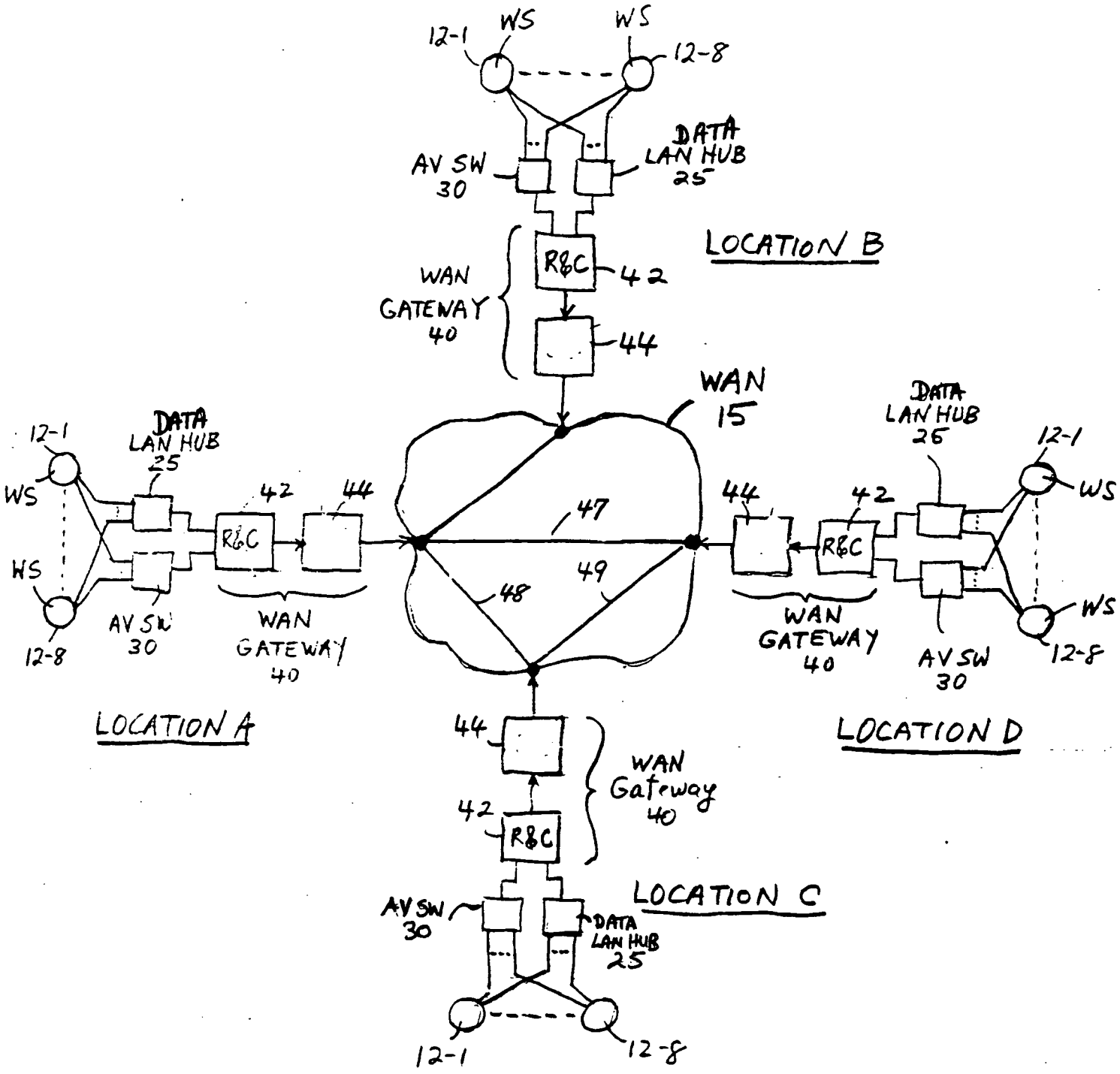

12-1
WS
WS
12-8
DATA LAN HUB 25
AV SW 30
LOCATION B
R&C
42
WAN GATEWAY 40
44
WAN 15
DATA LAN HUB 25
12-1
WS
WS
12-8
AV SW 30
42
R&C
44
WAN GATEWAY 40
47
48
49
44
42
R&C
DATA LAN HUB 26
12-1
WS
WS
12-8
AV SW 30
LOCATION A
LOCATION D
44
WAN Gateway 40
42
R&C
AV SW 30
DATA LAN HUB 25
LOCATION C
12-1
12-8

Fig. 4

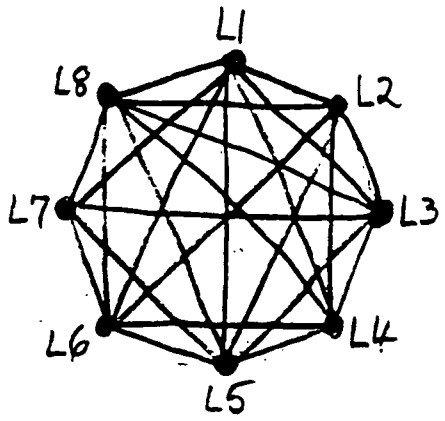



FIG. 5

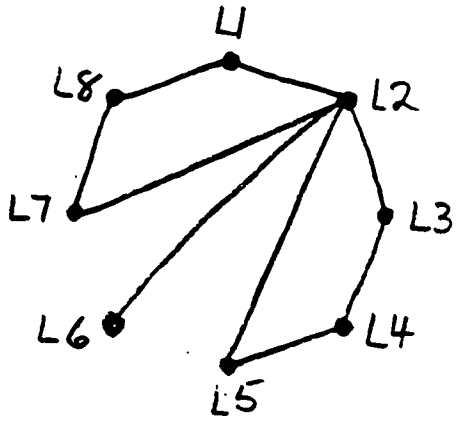



FIG. 6

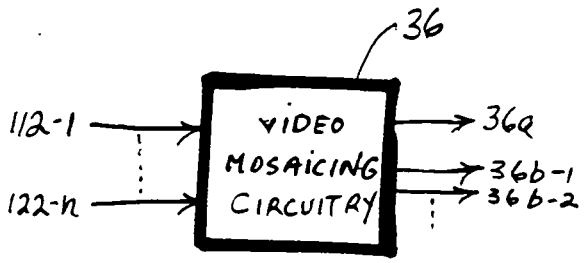



FIG. 7

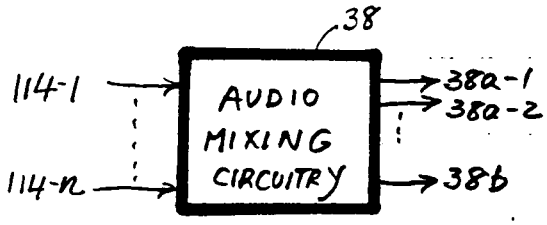



FIG. 9

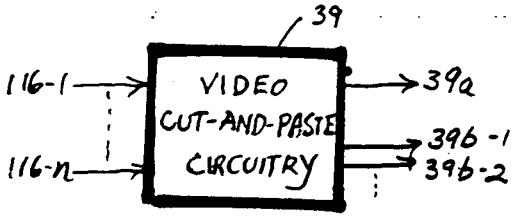



FIG. 10

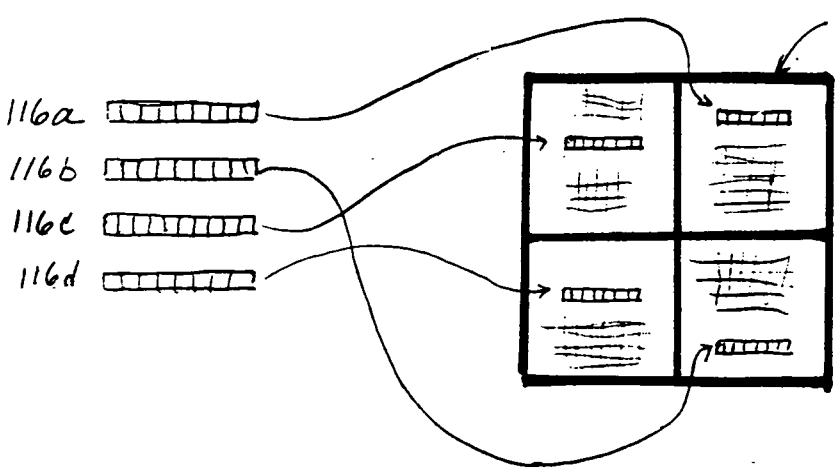



FIG. 11

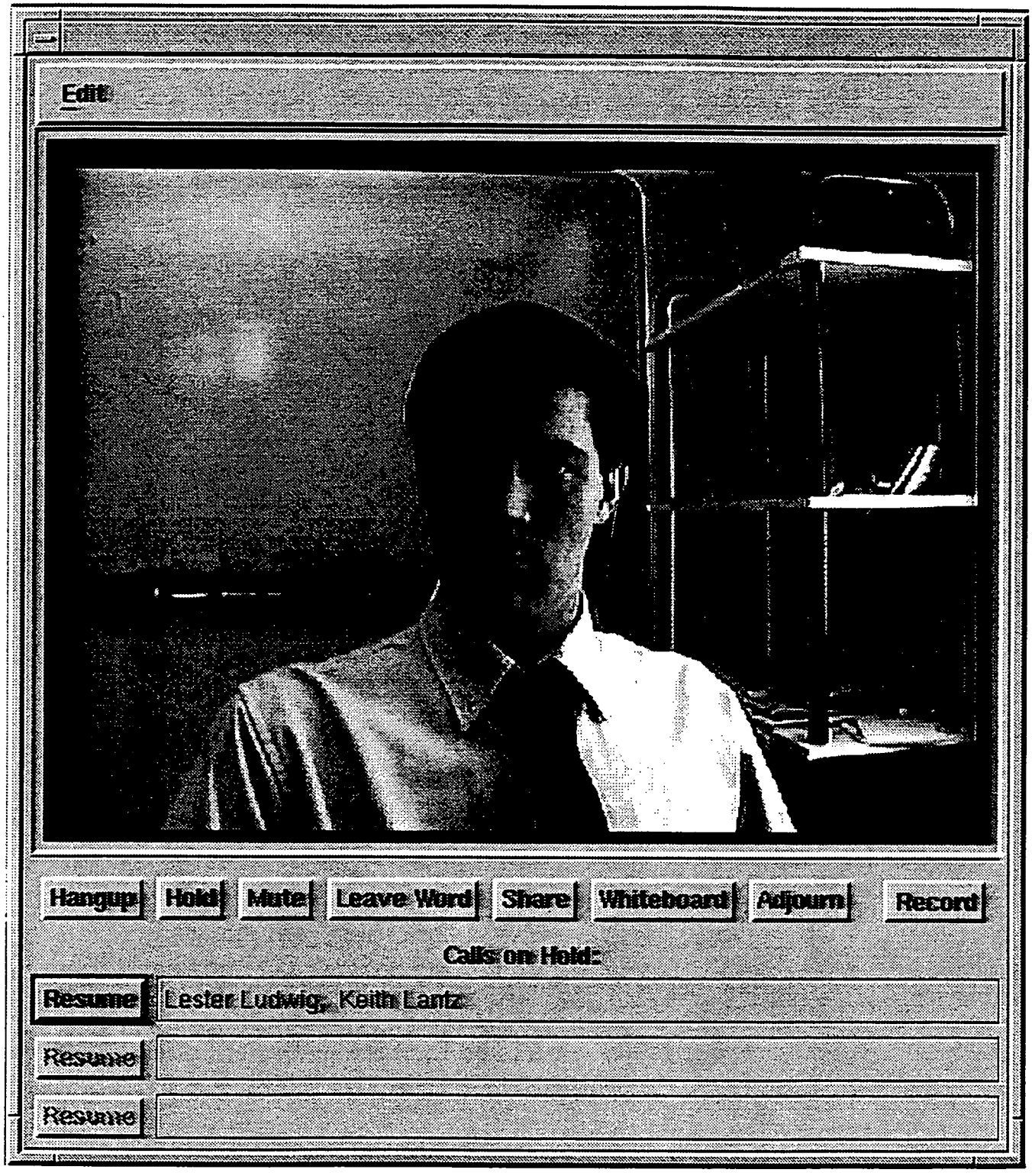

Edit:
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Adjourn
Record
Calls on Hold:
Resume
Lester Ludwig, Keith Lantz
Resume
Resume

Fig 8A

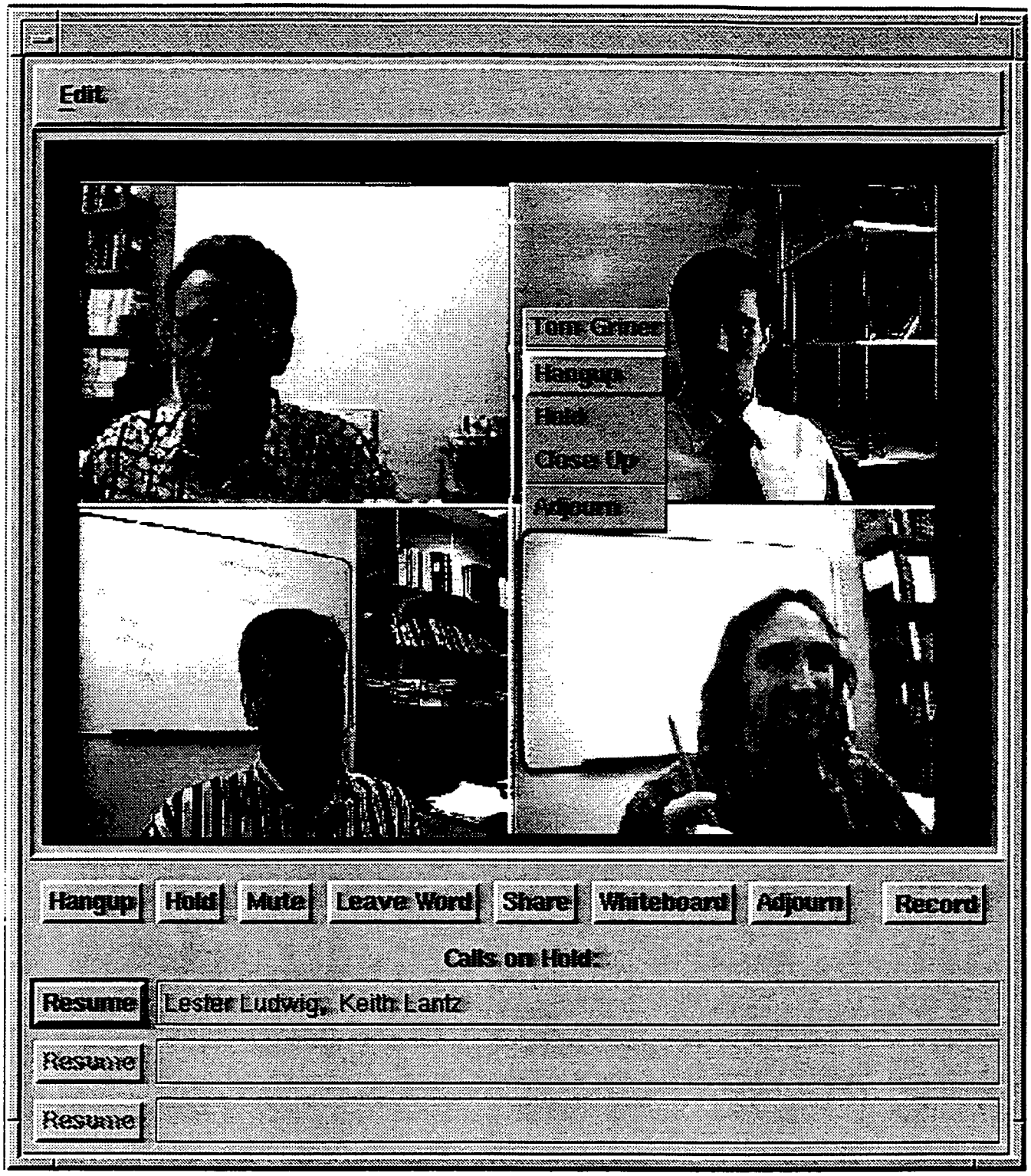

Edit
Tone Grimes
Hangup
Hold
Close Up
Adjourn
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Adjourn
Record
Calls on Hold:
Resume
Lester Ludwig, Keith Lantz
Resume
Resume

Fig 8B

Edit
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Record
Calls on Hold:
Resume
Lester Ludwig, Keith Lantz
Resume
Resume
Shell
maker
VCR
Editor
Print
Rolodex
ColorPrint
VideoPhone
SunPC
Calculator
VPhone-test
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

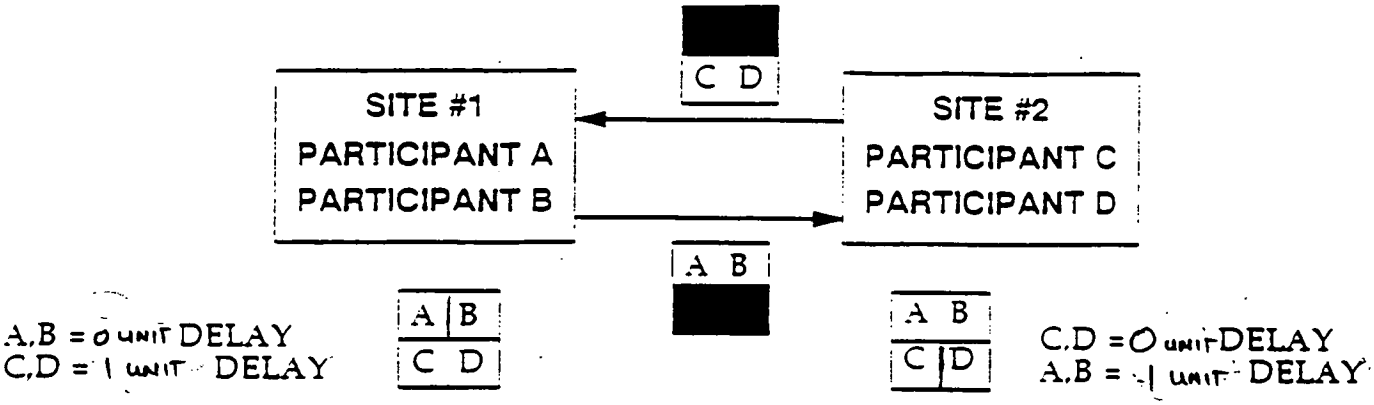
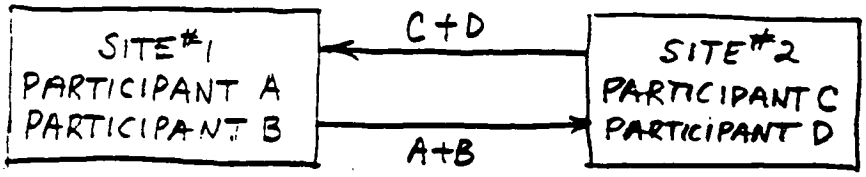



FIGURE 12A




A hears B + C + D
B hears A + C + D

A,B = 0 UNIT DELAY
C,D = 1 UNIT DELAY

C hears A + B + D
D hears A + B + C

C,D = 0 UNIT DELAY
A,B = 1 UNIT DELAY

FIGURE 12B

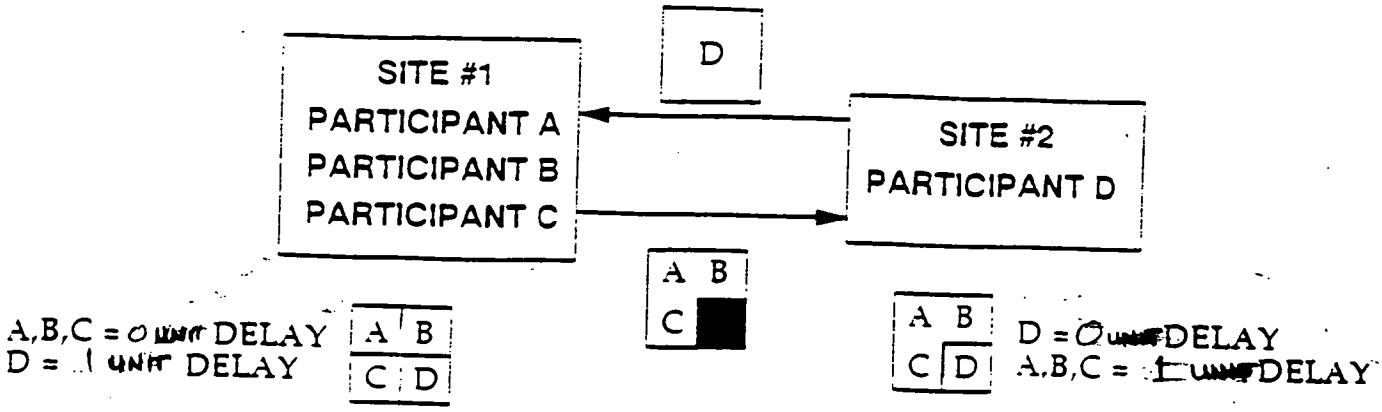



FIGURE 13A

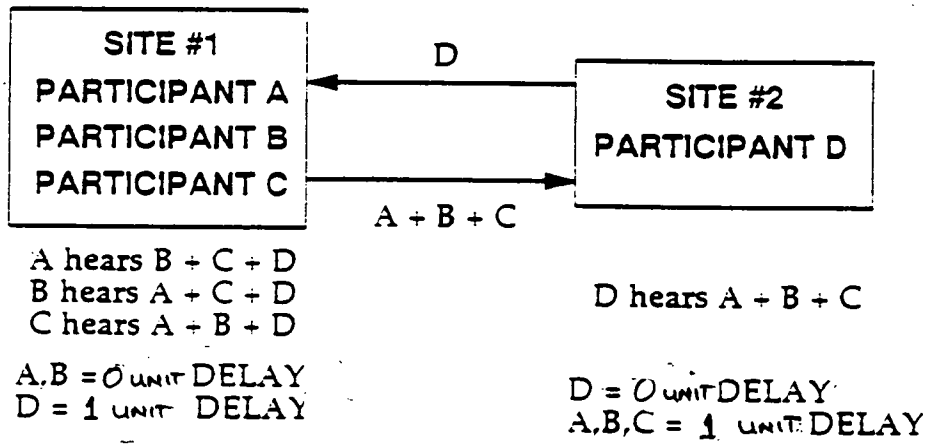



FIGURE 13B

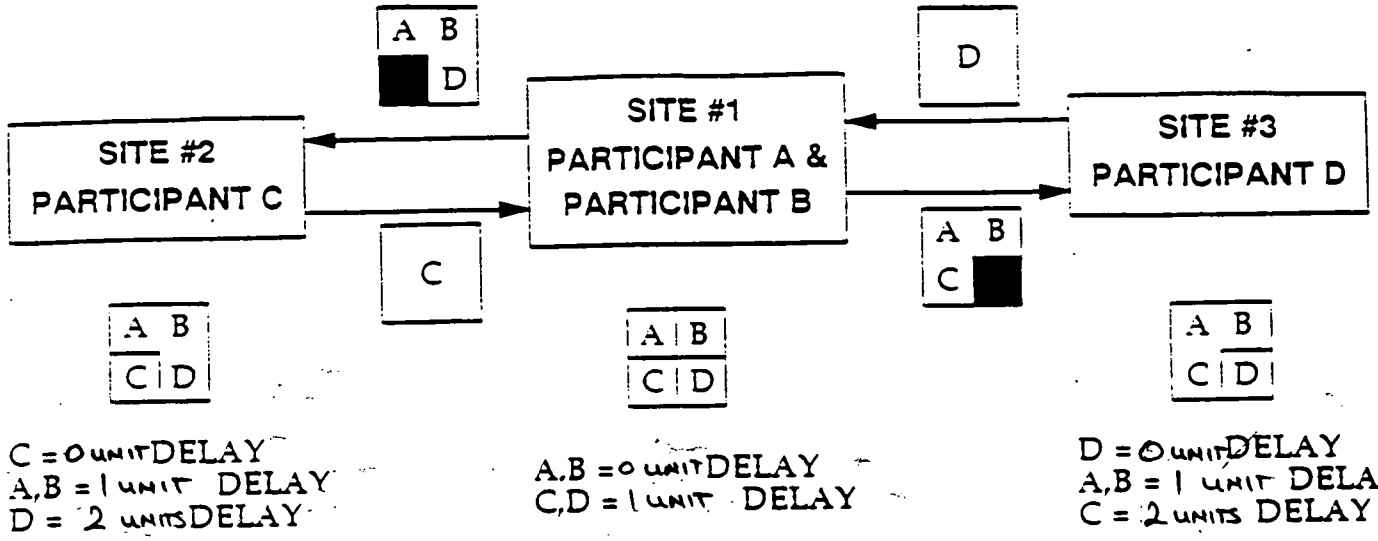



FIGURE 14A

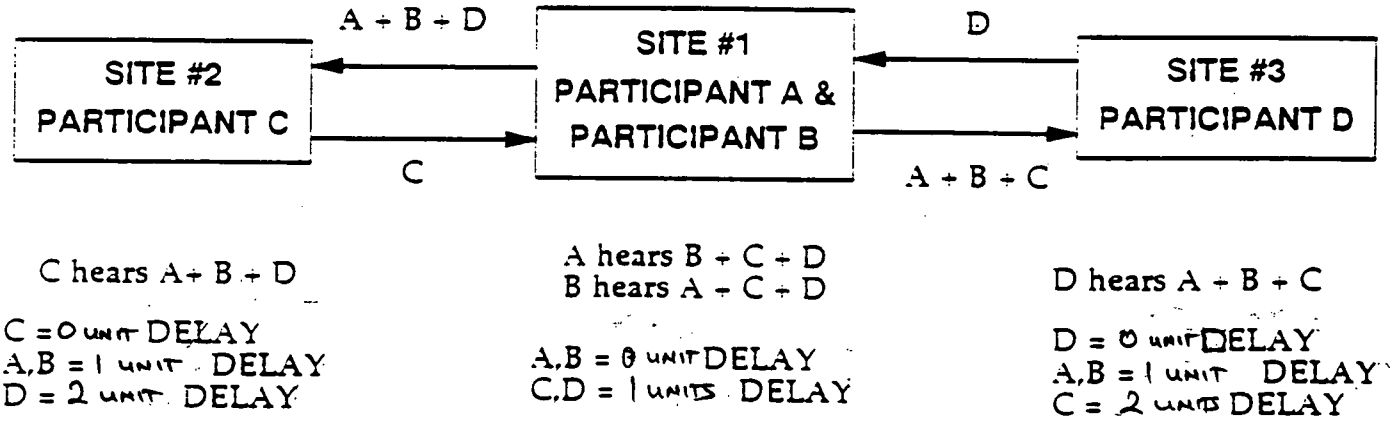



FIGURE 14B

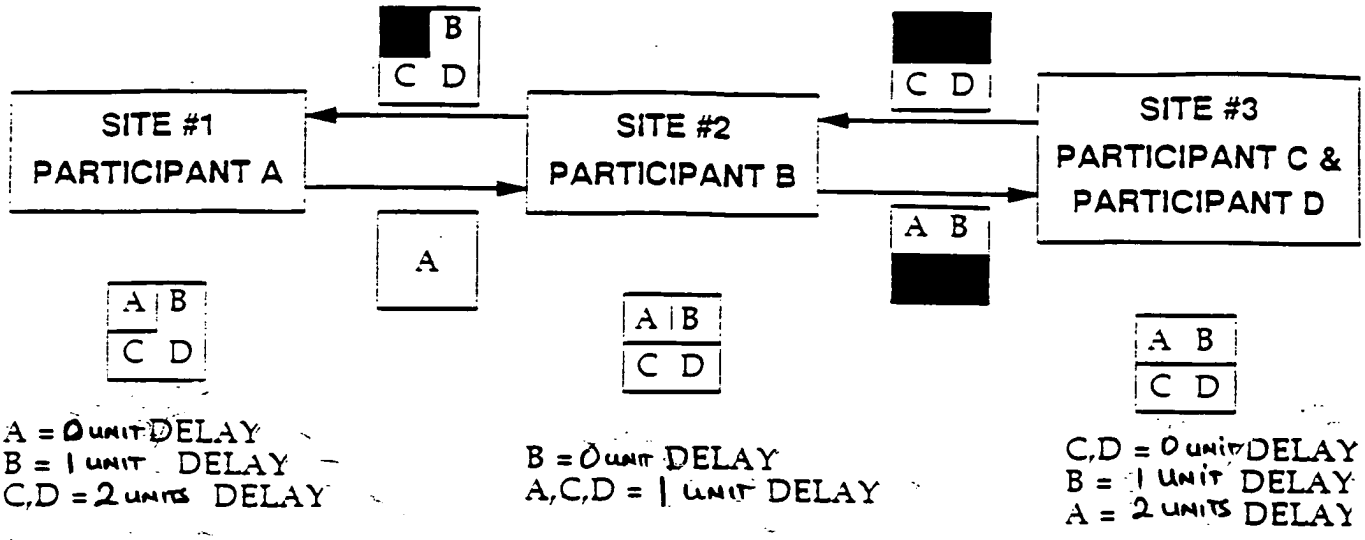



FIGURE 15A

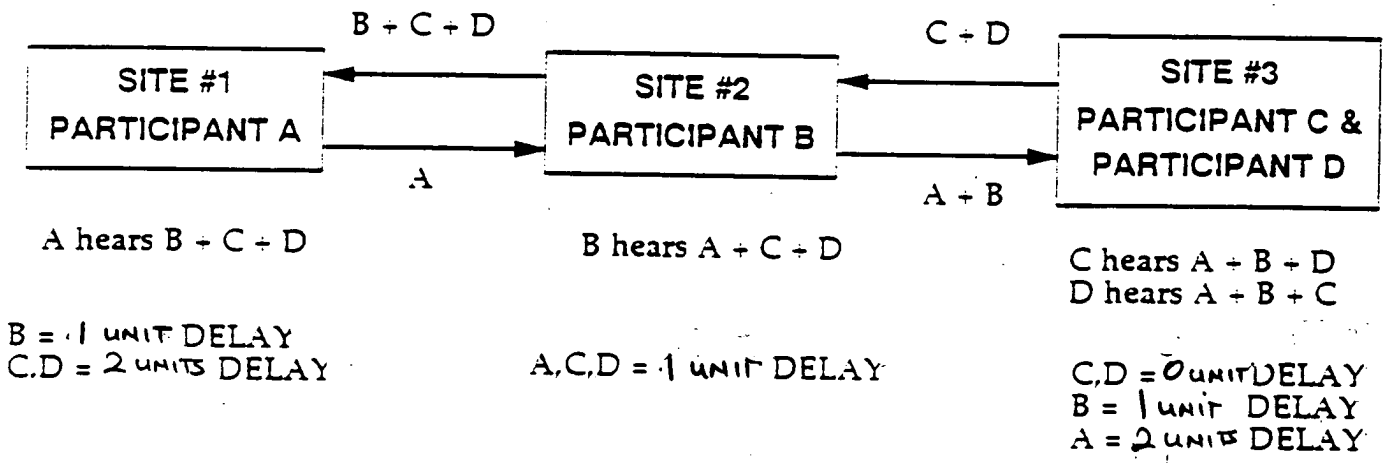



FIGURE 15B

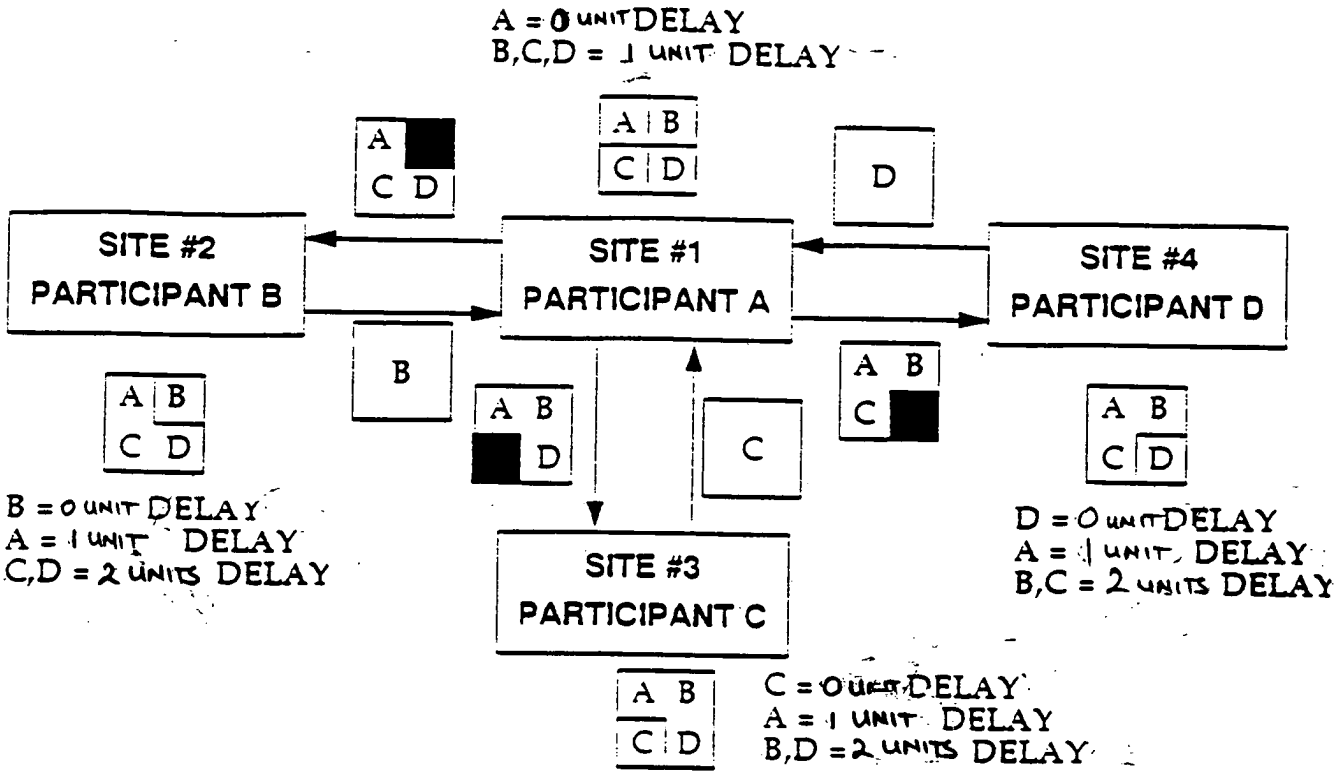

A = 0 UNIT DELAY
B,C,D = 1 UNIT DELAY
A B
C D
A
C D
D
SITE #2
PARTICIPANT B
SITE #1
PARTICIPANT A
SITE #4
PARTICIPANT D
B
A B
C
A B
C D
A B
D
C
A B
C D
B = 0 UNIT DELAY
A = 1 UNIT DELAY
C,D = 2 UNITS DELAY
D = 0 UNIT DELAY
A = 1 UNIT DELAY
B,C = 2 UNITS DELAY
SITE #3
PARTICIPANT C
A B
C D
C = 0 UNIT DELAY
A = 1 UNIT DELAY
B,D = 2 UNITS DELAY

FIGURE 16

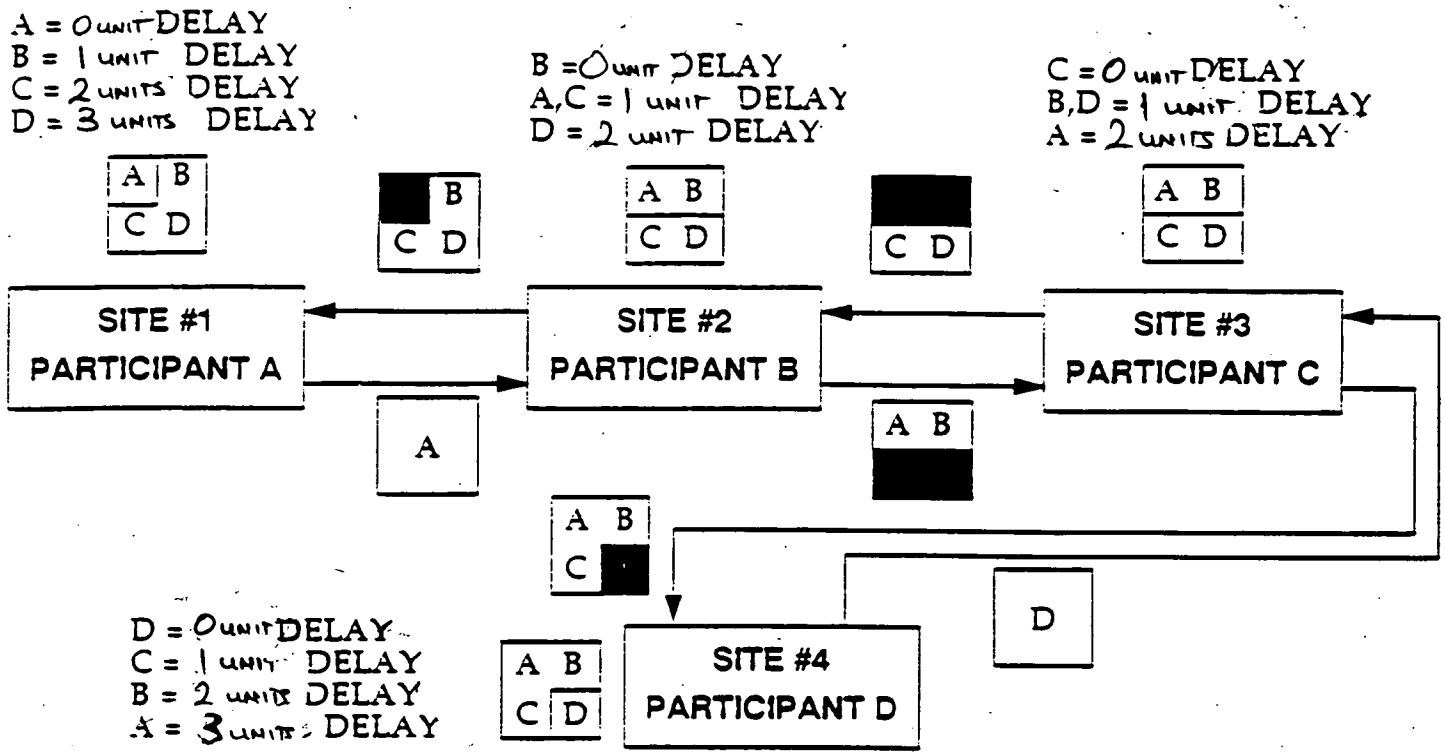



FIGURE 17A

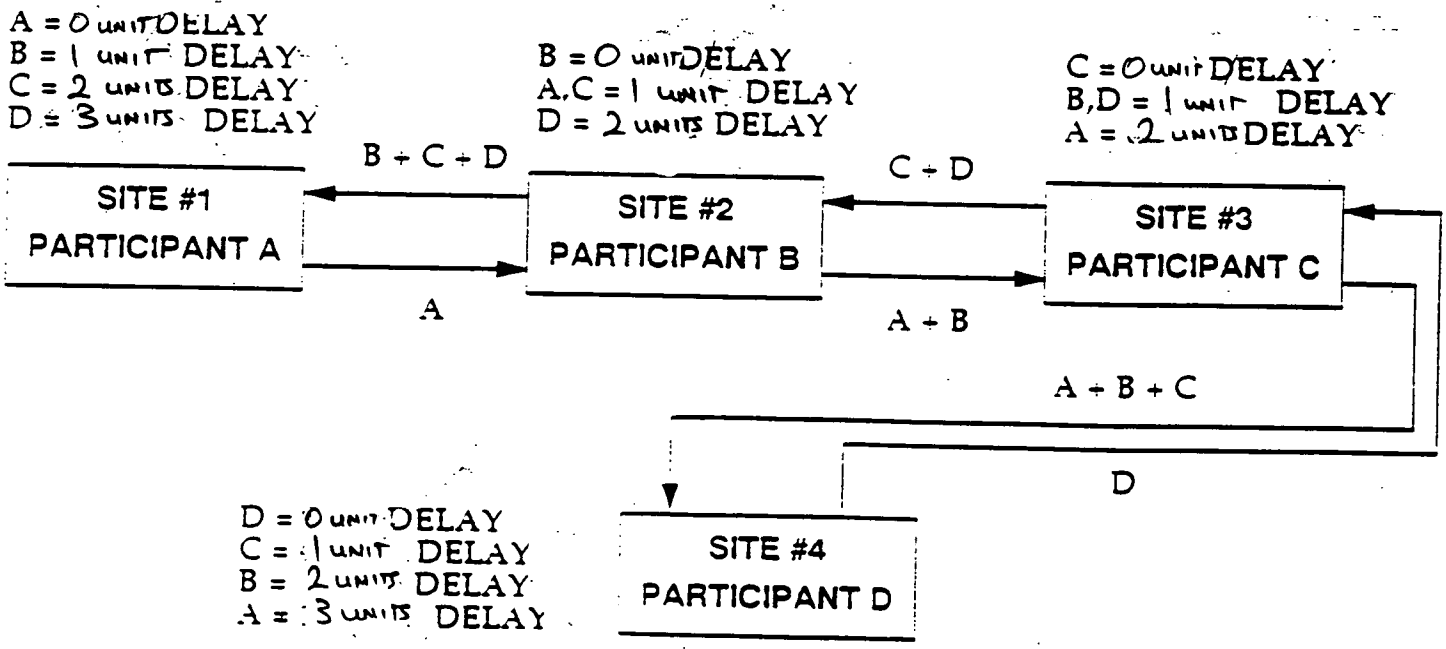



FIGURE 17B

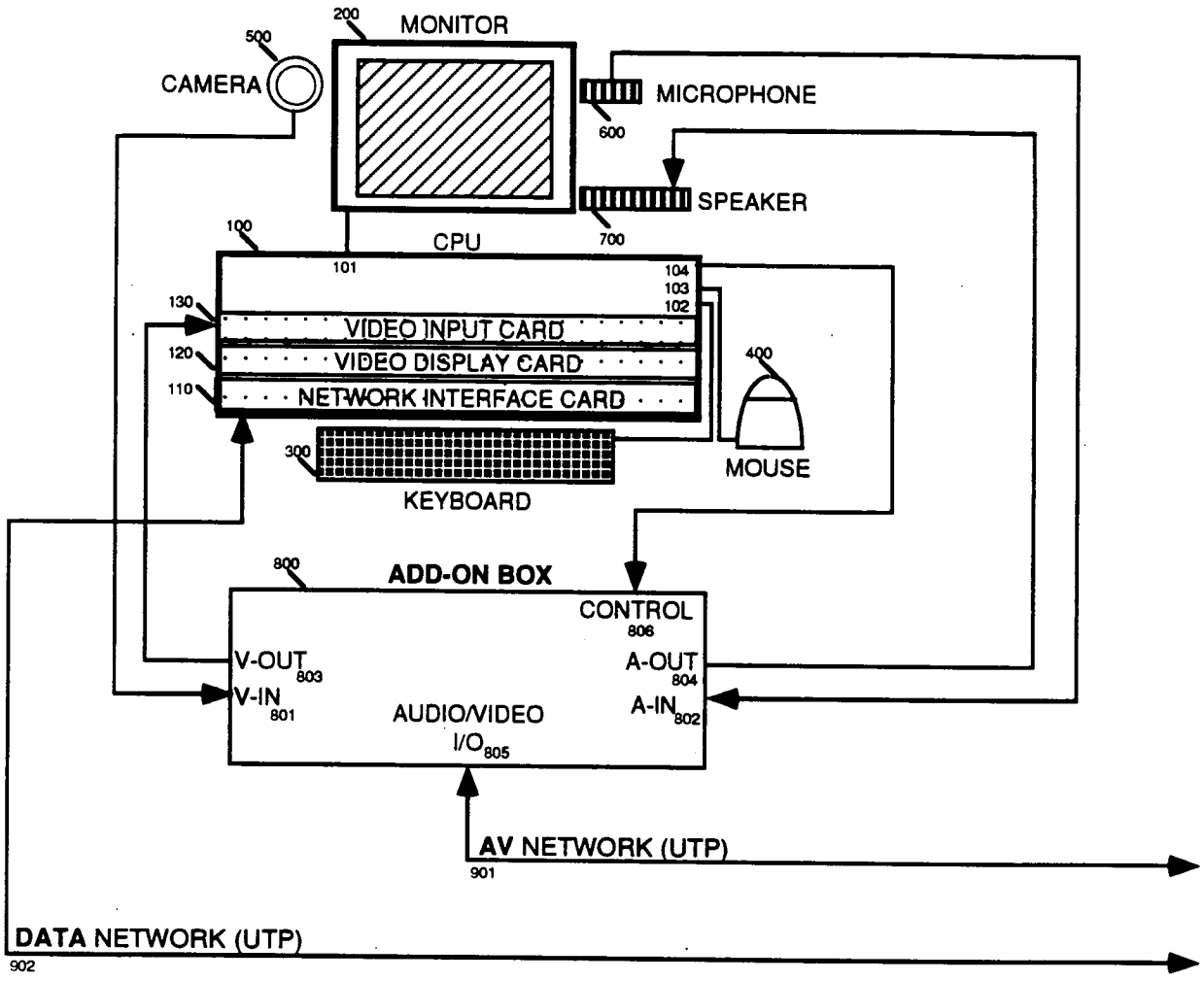

200
MONITOR
500
CAMERA
MICROPHONE
600
SPEAKER
700
100
CPU
101
104
103
102
130
VIDEO INPUT CARD
120
VIDEO DISPLAY CARD
110
NETWORK INTERFACE CARD
400
300
KEYBOARD
MOUSE
800
ADD-ON BOX
CONTROL
806
V-OUT
803
A-OUT
804
V-IN
801
AUDIO/VIDEO
I/O
805
A-IN
802
AV NETWORK (UTP)
901
DATA NETWORK (UTP)
902

Fig. 18A

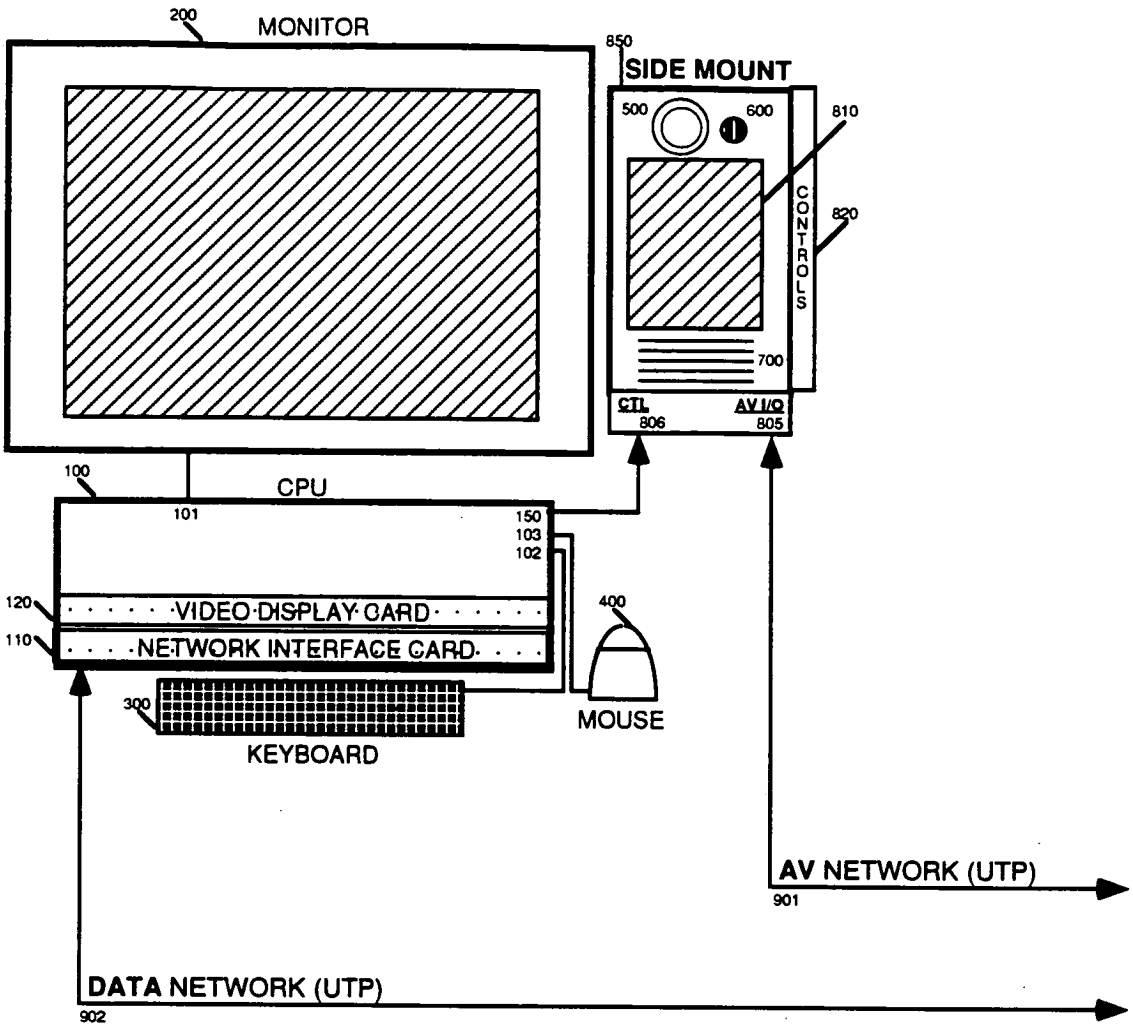

200
MONITOR
850
SIDE MOUNT
500
600
810
820
CONTROLS
700
CTL
806
AV I/O
805
100
CPU
101
150
103
102
120
VIDEO DISPLAY CARD
110
NETWORK INTERFACE CARD
400
300
KEYBOARD
MOUSE
AV NETWORK (UTP)
901
DATA NETWORK (UTP)
902

Fig. 18B

# ADD-ON BOX

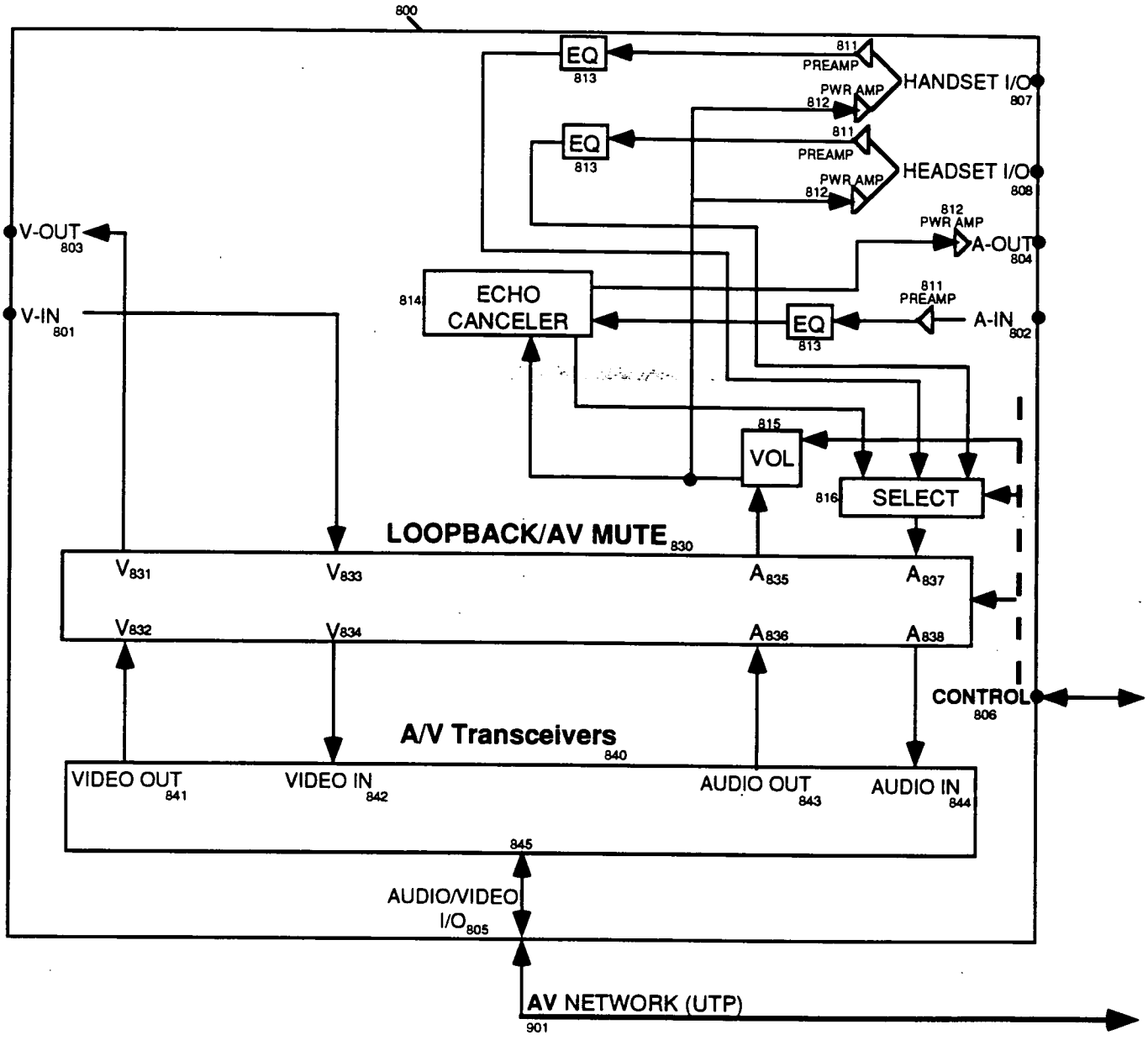



Fig. 19

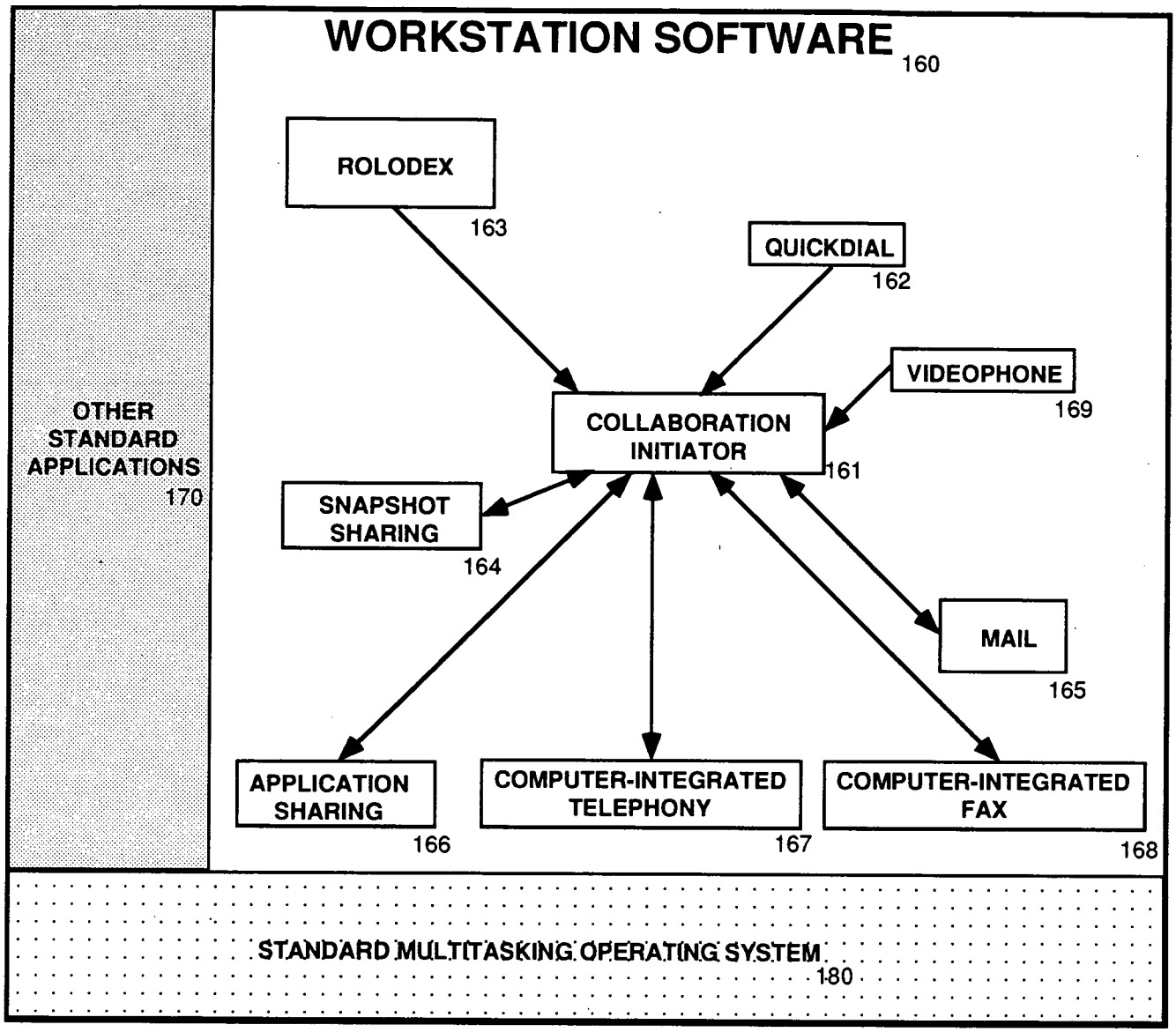

WORKSTATION SOFTWARE
160
ROLODEX
163
QUICKDIAL
162
VIDEOPHONE
169
COLLABORATION INITIATOR
161
SNAPSHOT SHARING
164
MAIL
165
APPLICATION SHARING
166
COMPUTER-INTEGRATED TELEPHONY
167
COMPUTER-INTEGRATED FAX
168
OTHER STANDARD APPLICATIONS
170
STANDARD MULTITASKING OPERATING SYSTEM
180

Fig. 20

MLAN SERVER
SOFTWARE MODULES
62

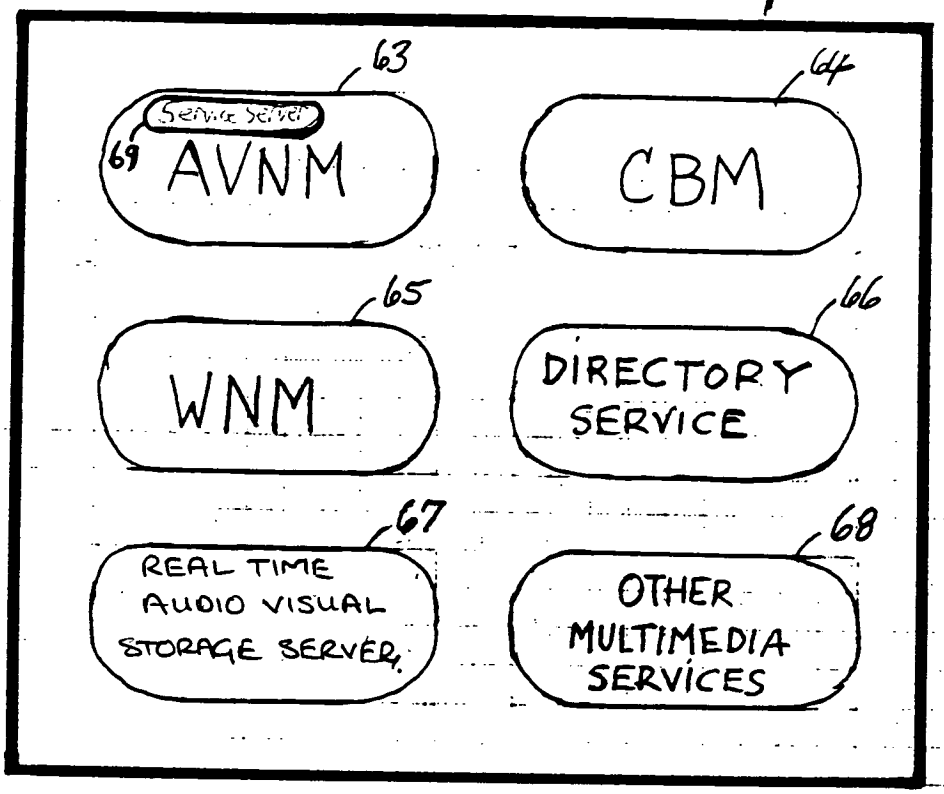



FIG. 21

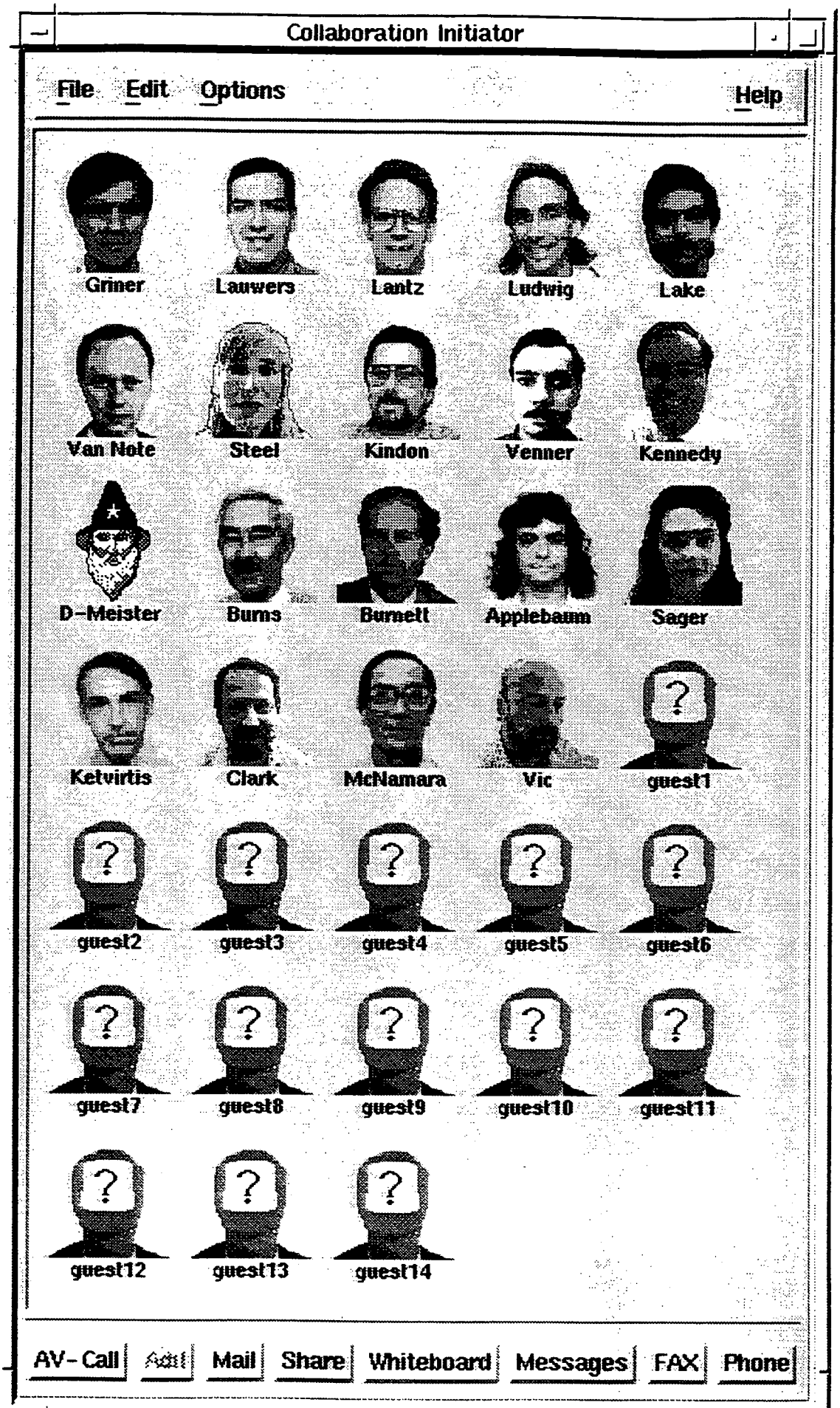

Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
D-Meister
Burns
Burnett
Applebaum
Sager
Ketvirtis
Clark
McNamara
Vic
guest1
guest2
guest3
guest4
guest5
guest6
guest7
guest8
guest9
guest10
guest11
guest12
guest13
guest14
AV-Call
Mail
Share
Whiteboard
Messages
FAX
Phone

FIG 22

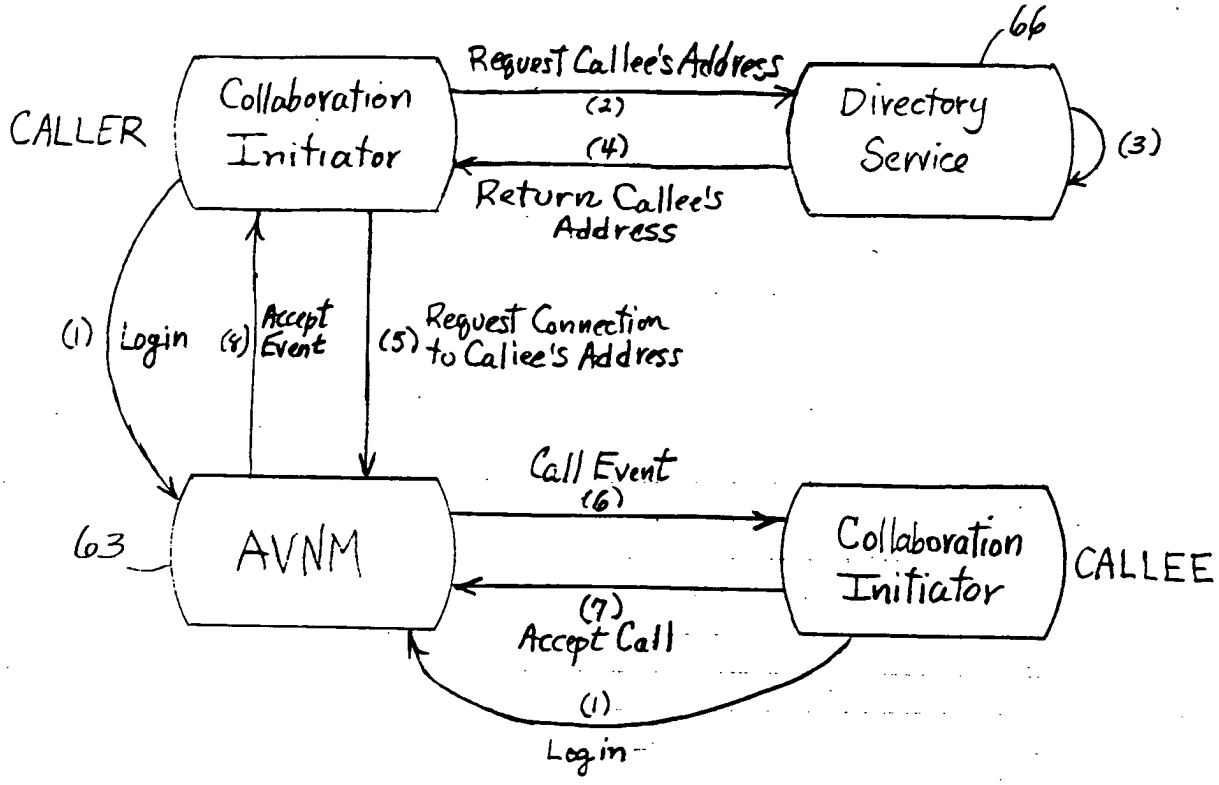

66
Request Callee's Address
(2)
Collaboration Initiator
CALLER
Directory Service
(3)
(4)
Return Callee's Address
(1) Login
(8) Accept Event
(5) Request Connection to Callee's Address
Call Event
(6)
63
AVNM
Collaboration Initiator
CALLEE
(7) Accept Call
(1) Login

FIG. 23

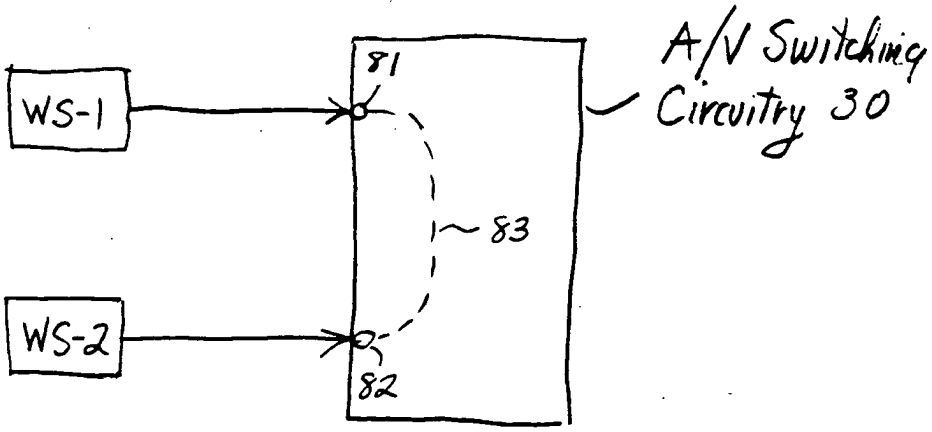

WS-1
WS-2
81
83
82
A/V Switching Circuitry 30

FIG. 24

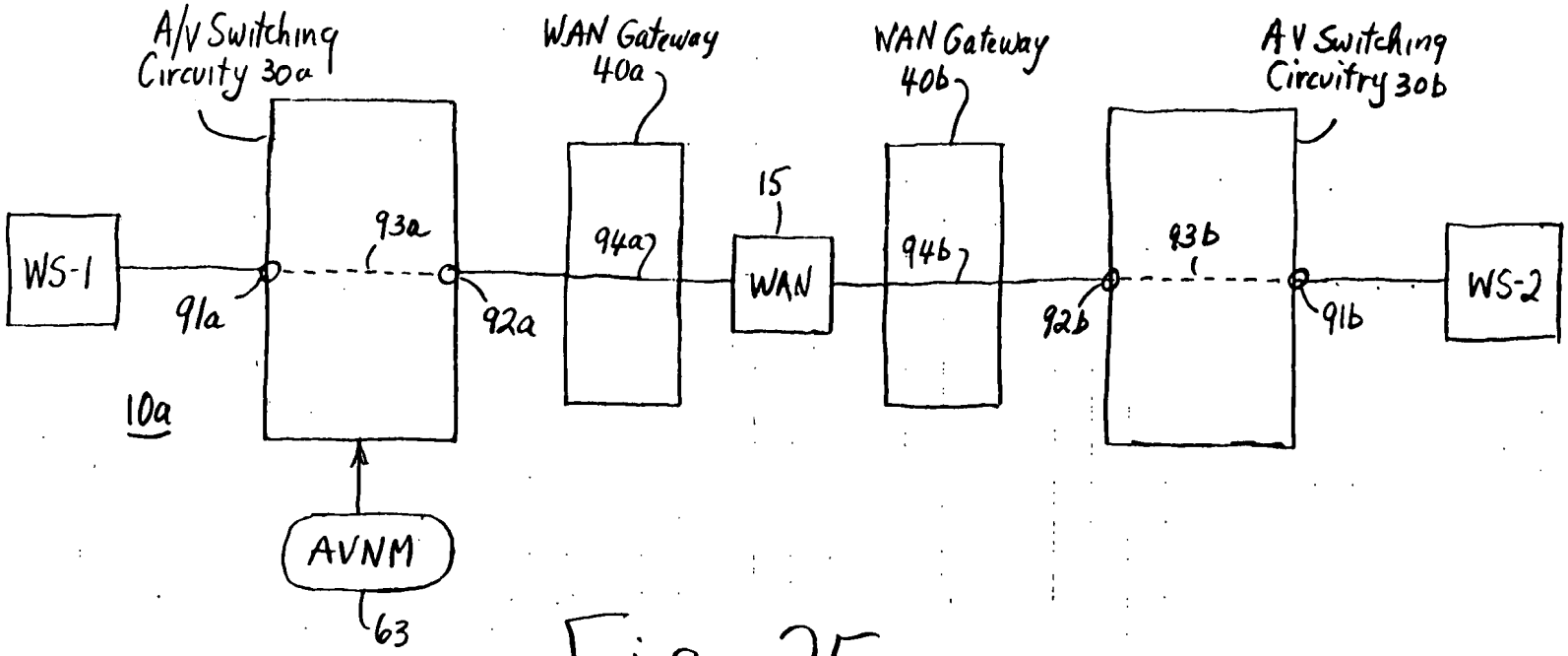

A/V Switching Circuitry 30a
WAN Gateway 40a
WAN Gateway 40b
A/V Switching Circuitry 30b
15
WS-1
91a
93a
92a
94a
WAN
94b
92b
93b
91b
WS-2
10a
AVNM
63

Fig. 25

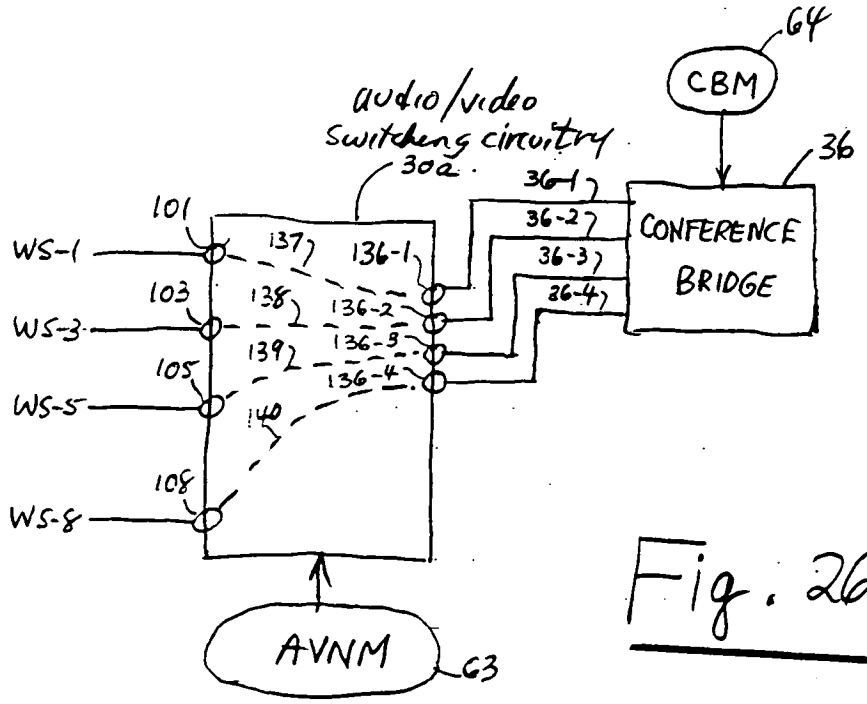

64
CBM
audio/video
switching circuitry
30a
36
36-1
36-2
36-3
36-4
CONFERENCE
BRIDGE
101
WS-1
137
136-1
103
WS-3
138
136-2
136-3
105
WS-5
139
136-4
140
108
WS-8
AVNM
63

Fig. 26

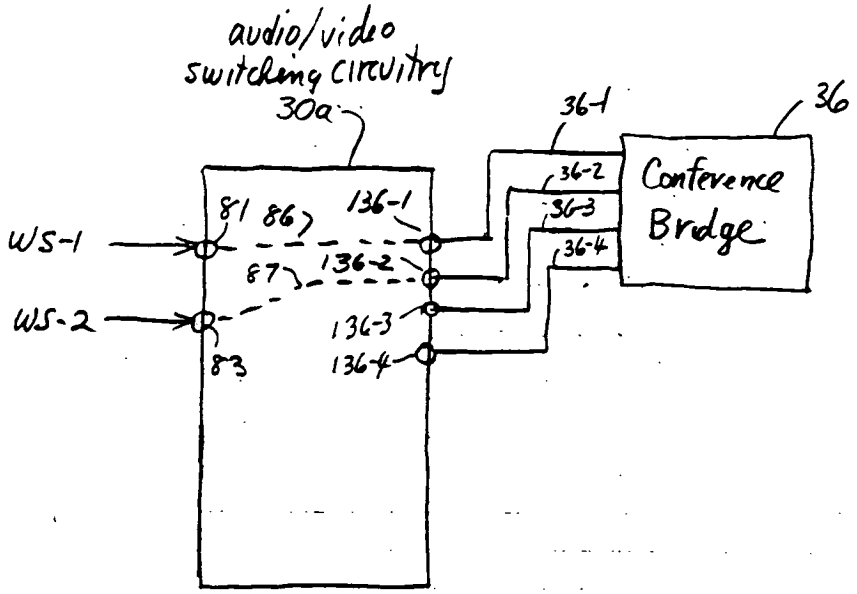

audio/video
switching circuitry
30a
36-1
36
Conference
Bridge
36-2
36-3
36-4
81
86
136-1
WS-1
87
136-2
WS-2
136-3
83
136-4

FIG. 27

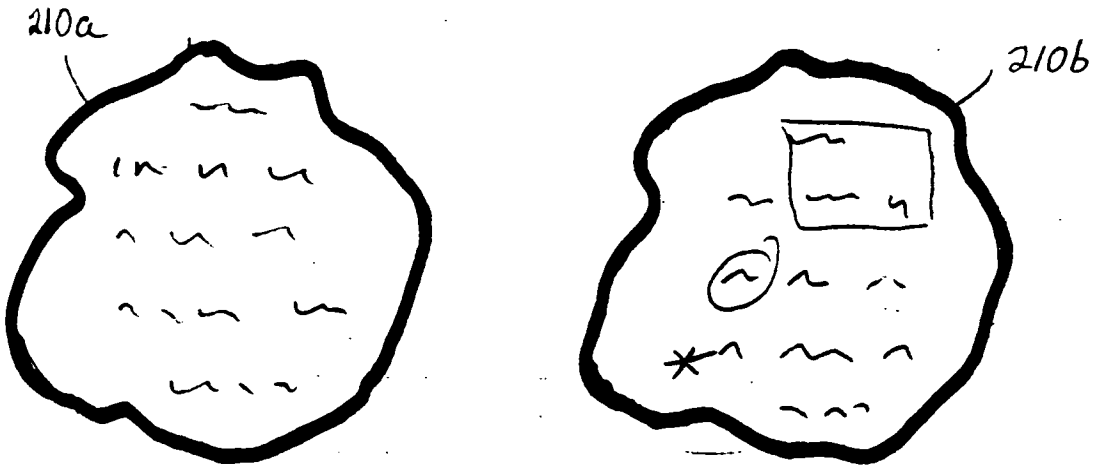



FIGURE 28

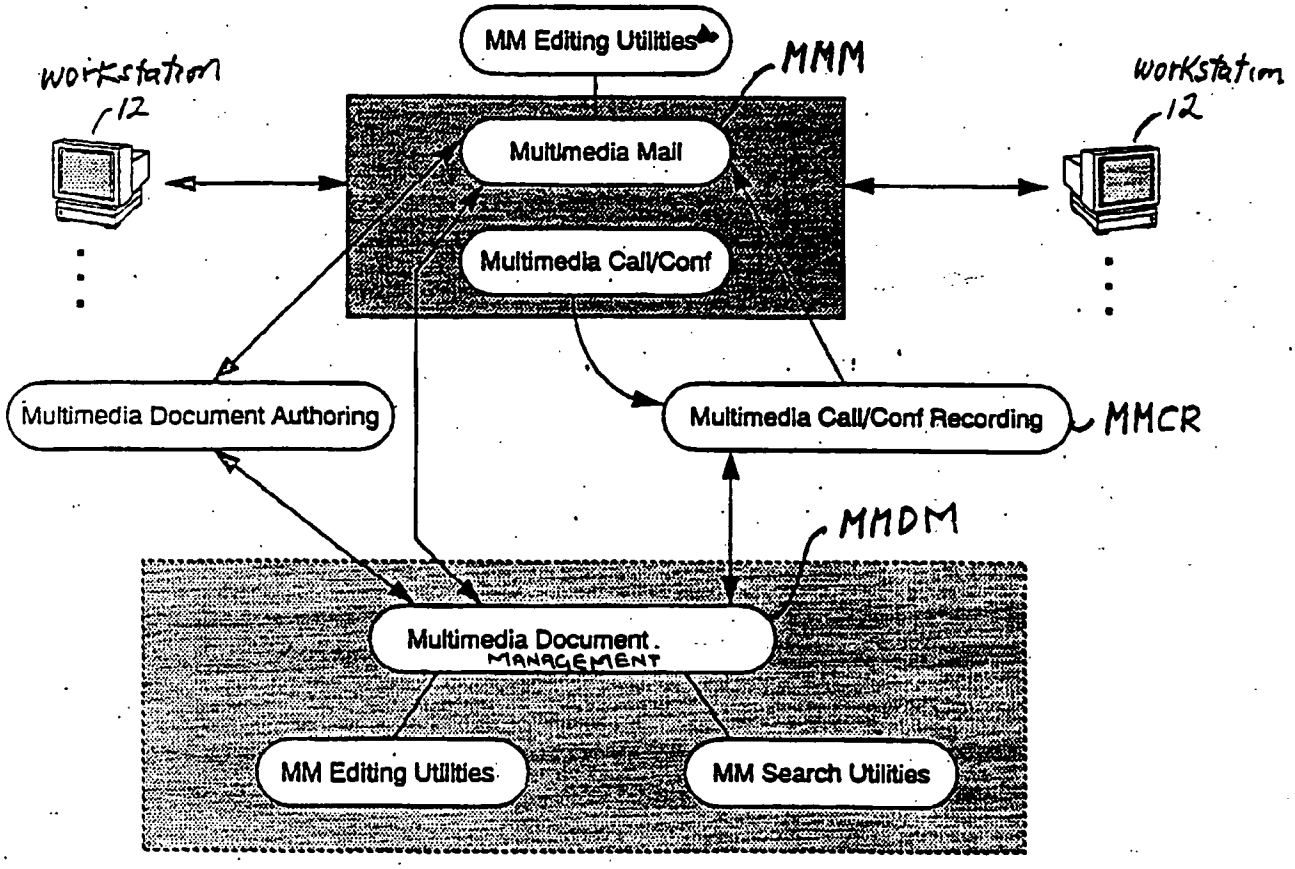



FIGURE 29

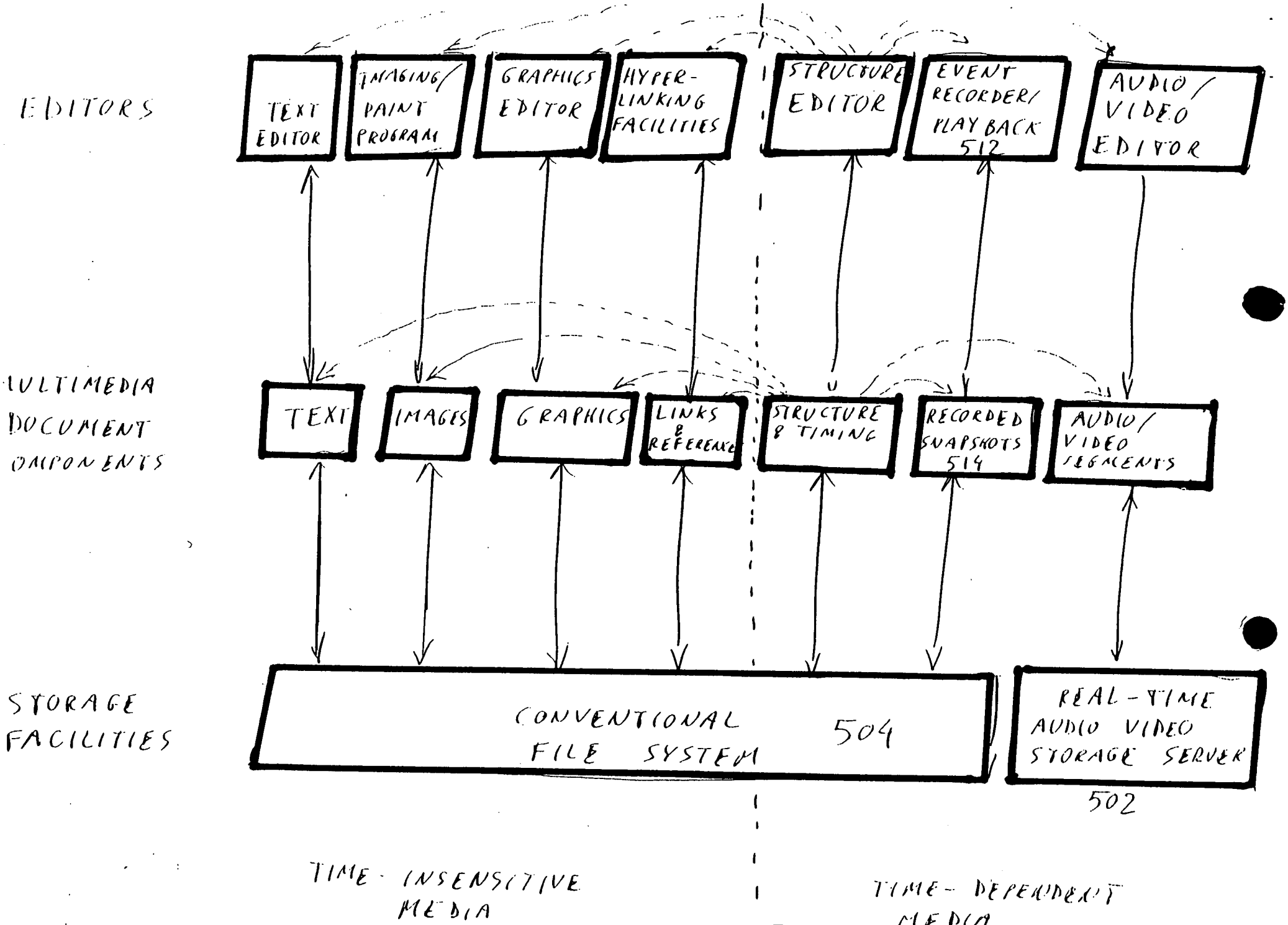

EDITORS
TEXT EDITOR
IMAGING/ PAINT PROGRAM
GRAPHICS EDITOR
HYPER-LINKING FACILITIES
STRUCTURE EDITOR
EVENT RECORDER/ PLAY BACK 512
AUDIO/ VIDEO EDITOR
MULTIMEDIA DOCUMENT COMPONENTS
TEXT
IMAGES
GRAPHICS
LINKS & REFERENCE
STRUCTURE & TIMING
RECORDED SNAPSHOTS 514
AUDIO/ VIDEO SEGMENTS
STORAGE FACILITIES
CONVENTIONAL FILE SYSTEM 504
REAL-TIME AUDIO VIDEO STORAGE SERVER
502
TIME-INSENSITIVE MEDIA
TIME-DEPENDENT MEDIA

FIGURE 30

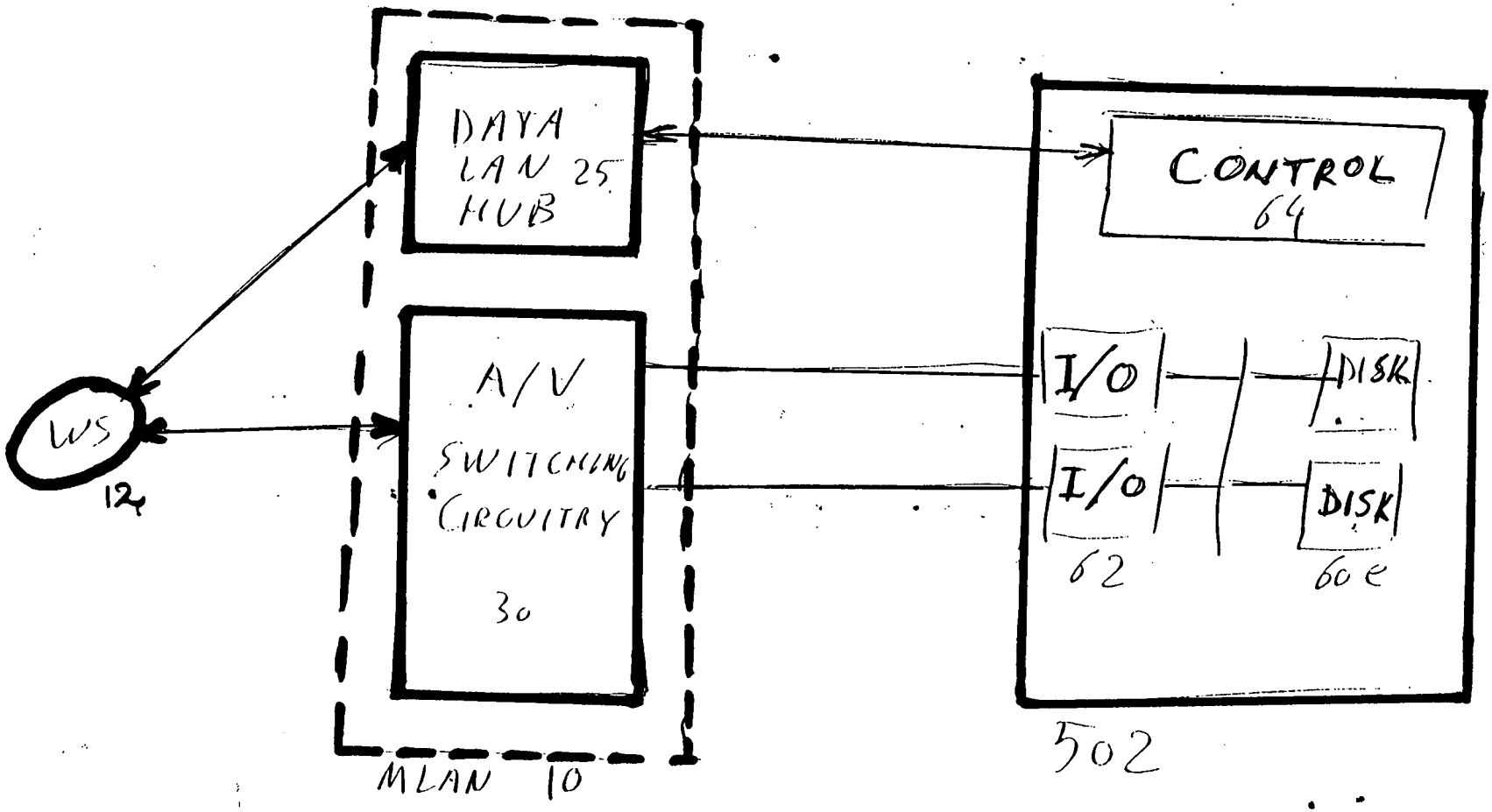

DATA LAN HUB 25
A/V SWITCHING CIRCUITRY 30
MLAN 10
WS 12
CONTROL 64
I/O
I/O
62
DISK
DISK
60e
502

FIGURE 31A

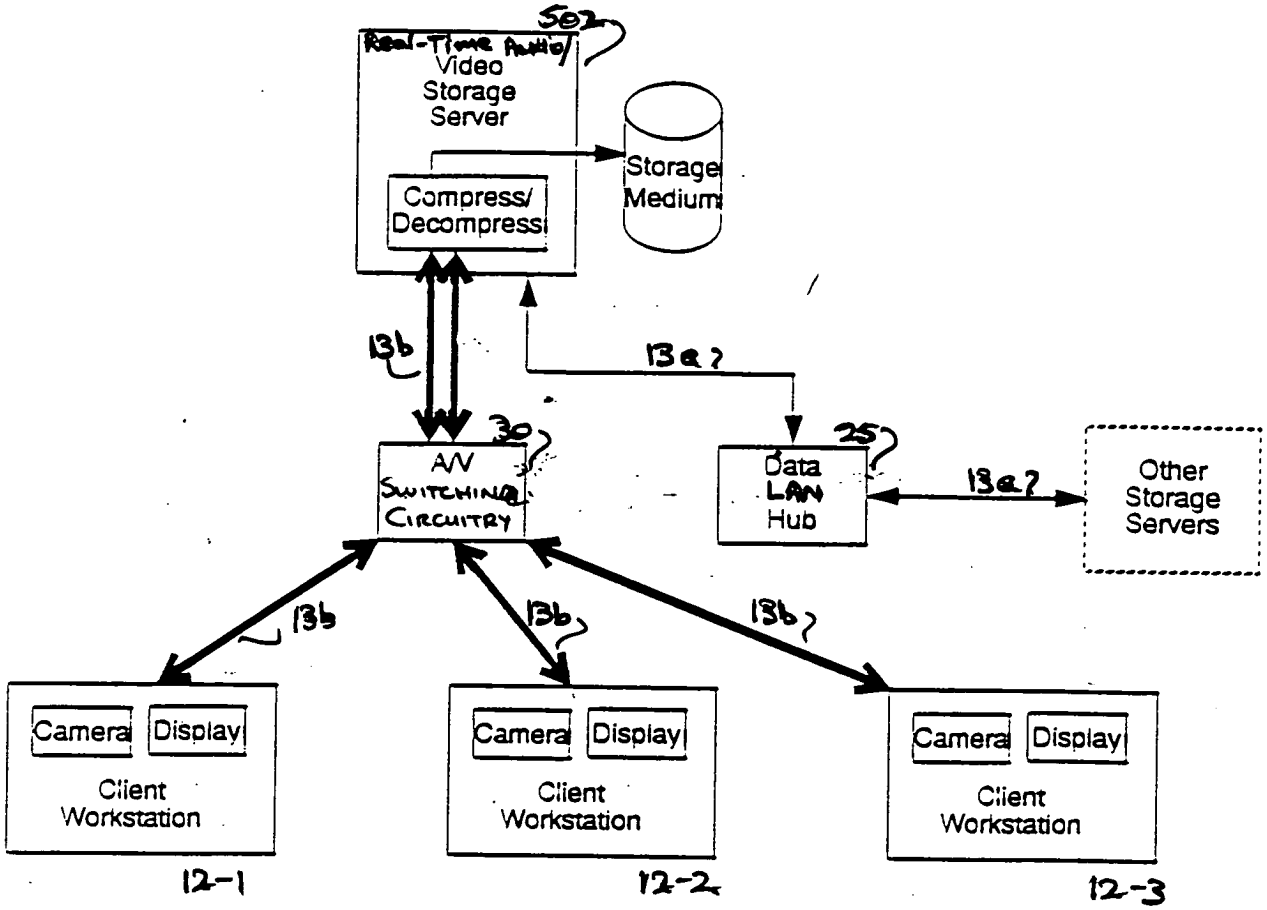



FIGURE 31B

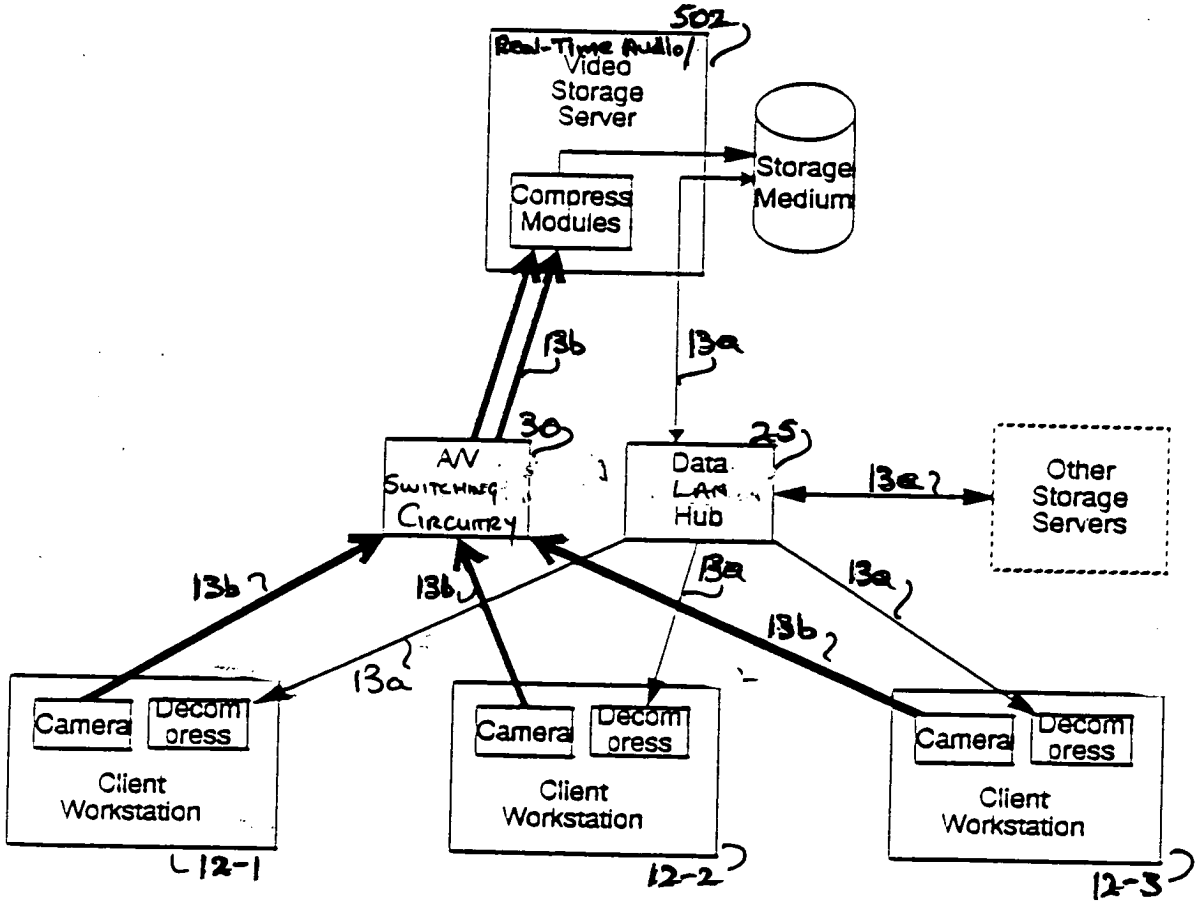



FIGURE 31C

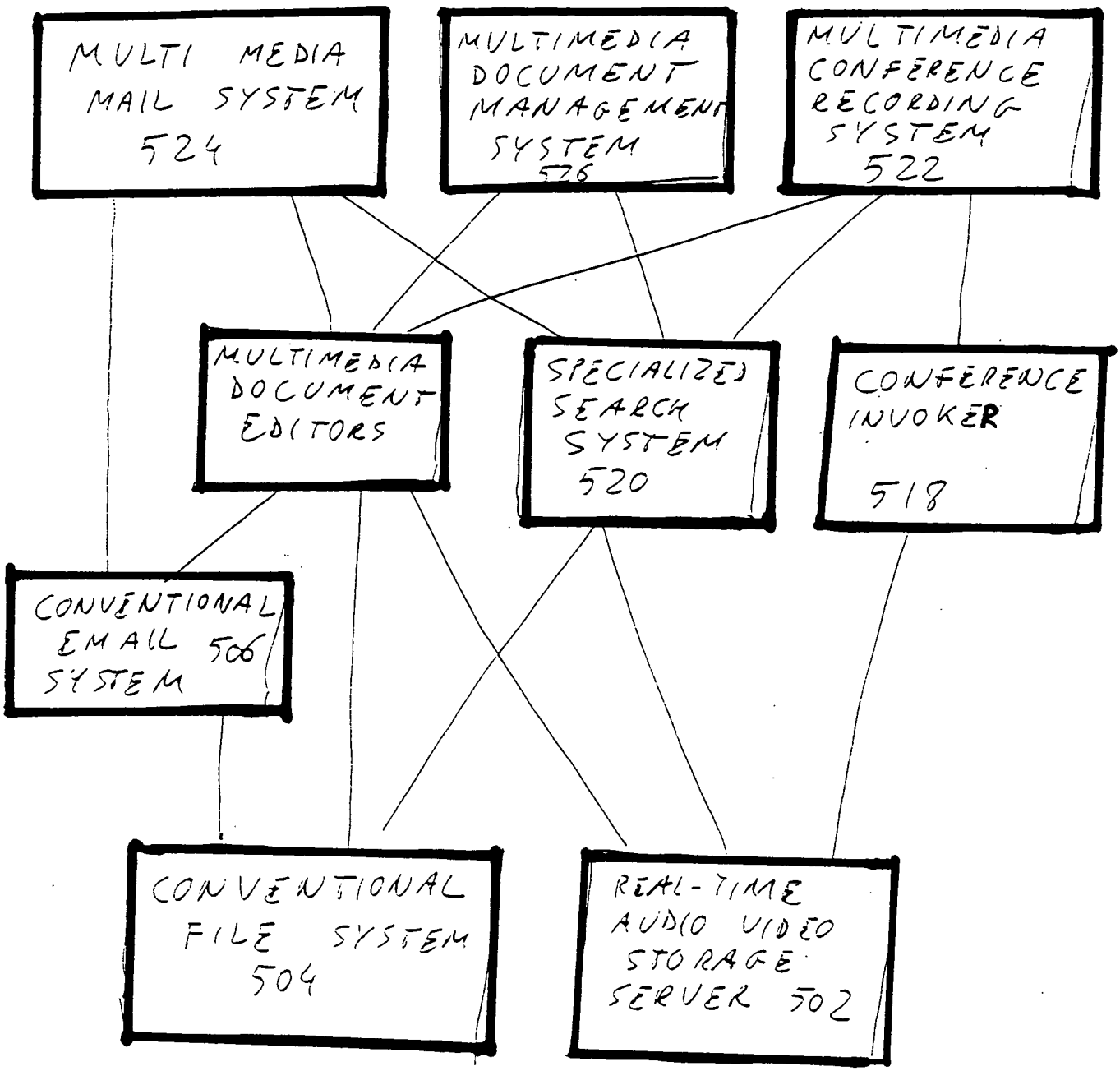

MULTI MEDIA MAIL SYSTEM 524
MULTIMEDIA DOCUMENT MANAGEMENT SYSTEM 526
MULTIMEDIA CONFERENCE RECORDING SYSTEM 522
MULTIMEDIA DOCUMENT EDITORS
SPECIALIZED SEARCH SYSTEM 520
CONFERENCE INVOKER 518
CONVENTIONAL EMAIL SYSTEM 506
CONVENTIONAL FILE SYSTEM 504
REAL-TIME AUDIO VIDEO STORAGE SERVER 502

FIGURE 31D

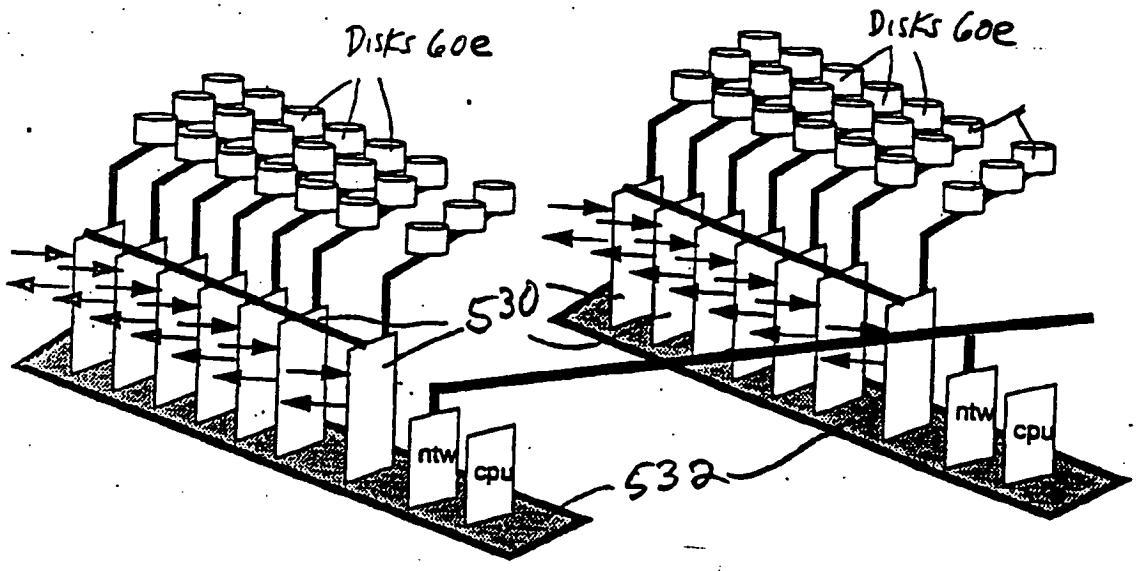



FIGURE 32

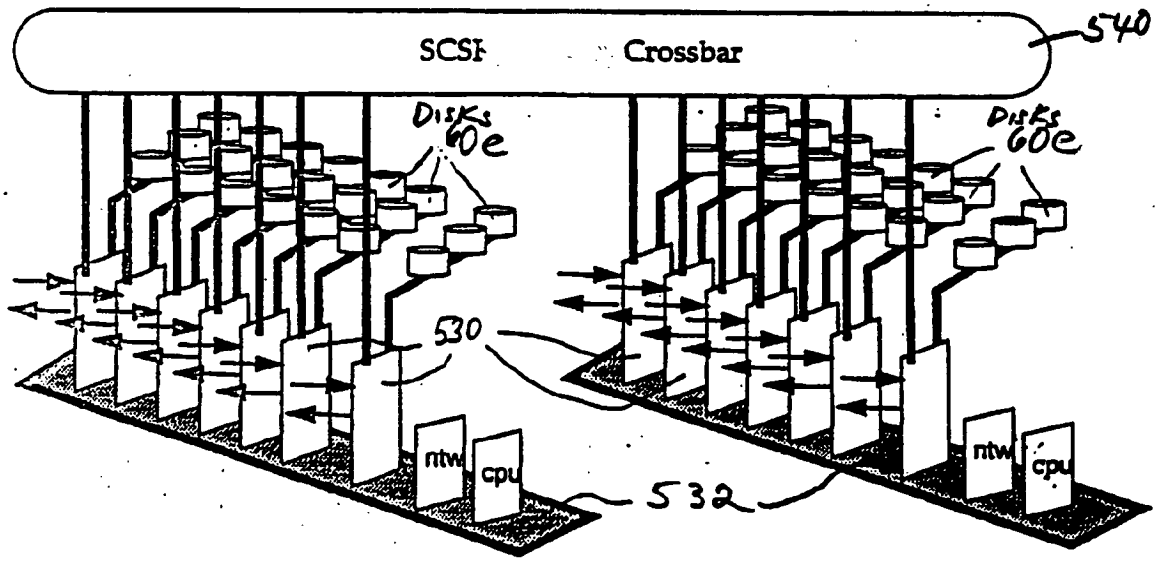



FIGURE 33

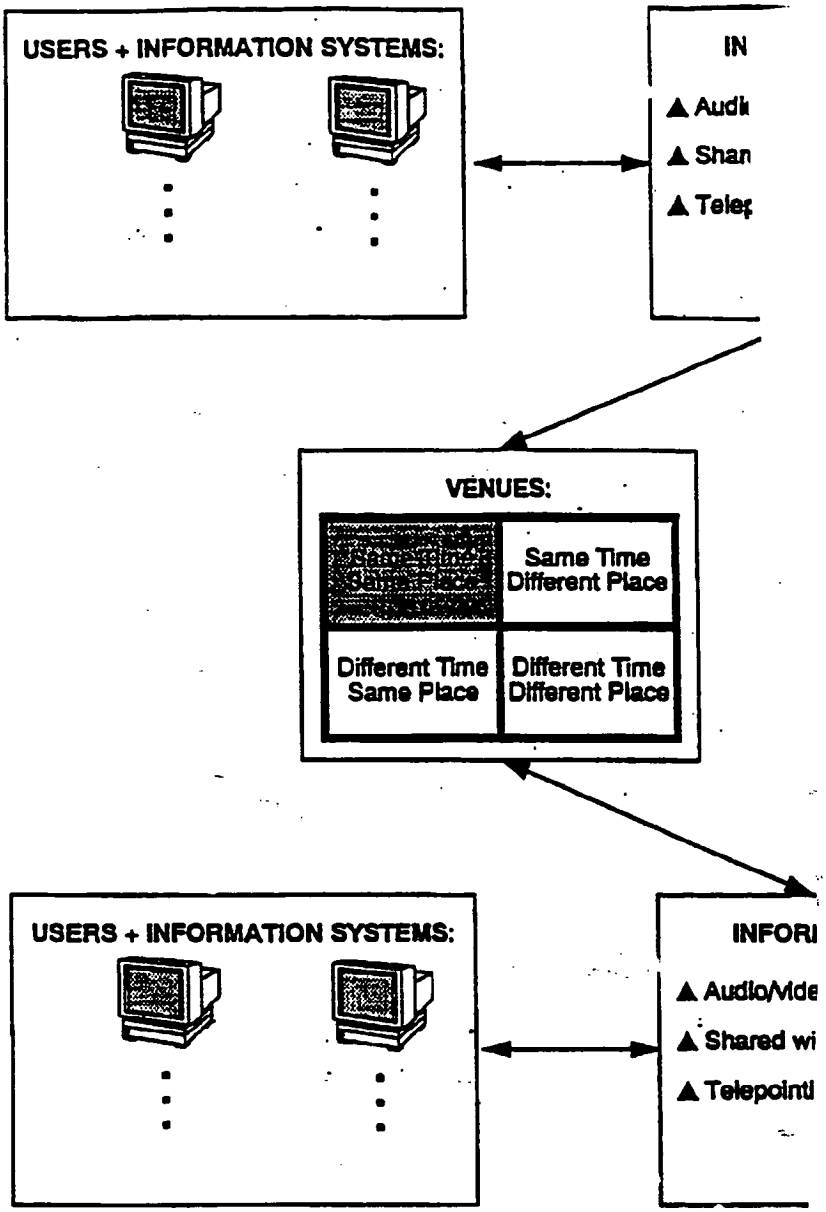

USERS + INFORMATION SYSTEMS:
IN
▲ Audi
▲ Shan
▲ Telep
VENUES:
Same Time
Different Place
Different Time
Same Place
Different Time
Different Place
USERS + INFORMATION SYSTEMS:
INFORI
▲ Audio/Vide
▲ Shared wi
▲ Telepointi

FIGURE 34

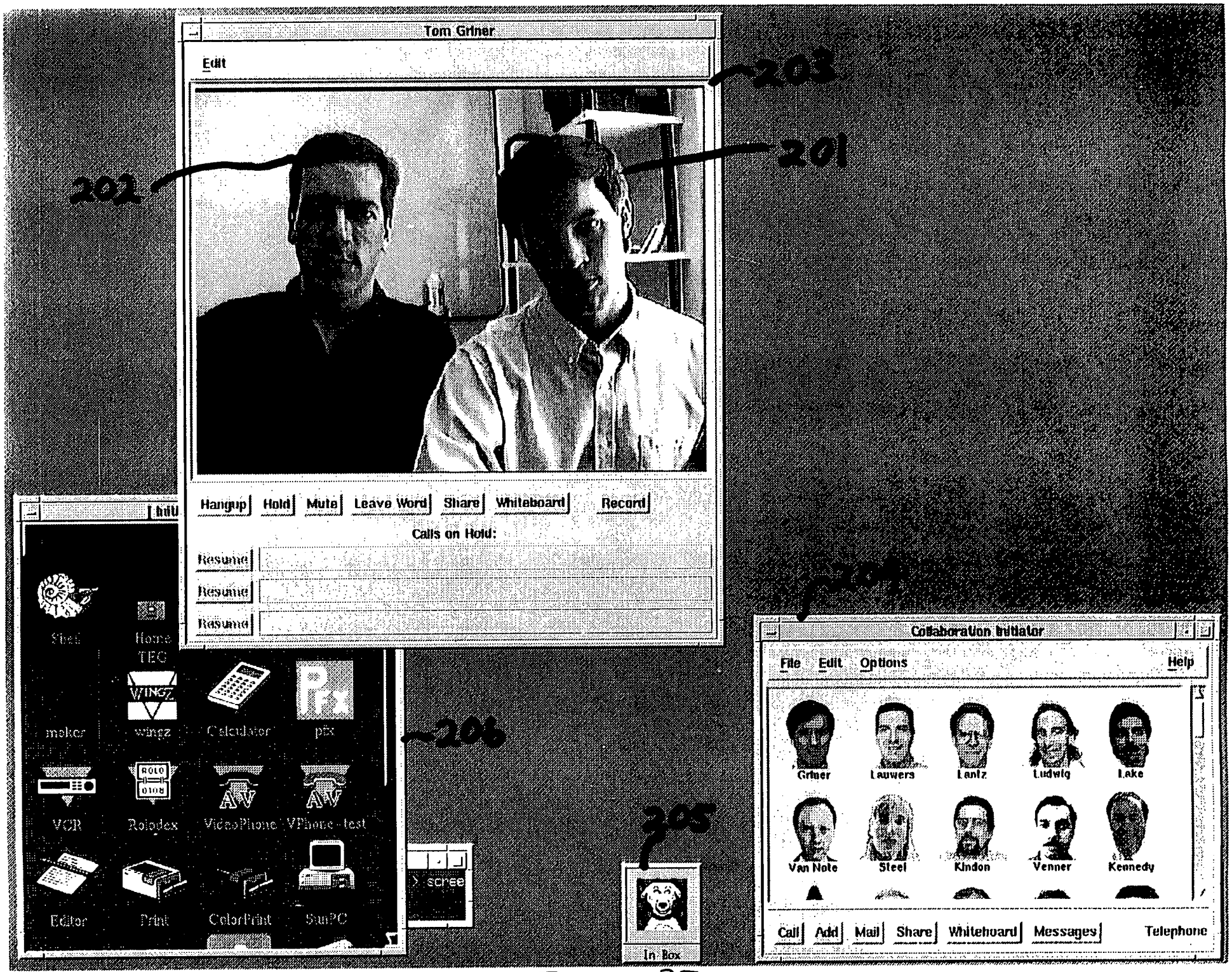

Tom Griner
Edit
202
201
203
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Record
Calls on Hold:
Resume
Resume
Resume
Steel
Home TEG
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone - test
Editor
Print
ColorPrint
SunPC
206
205
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 35

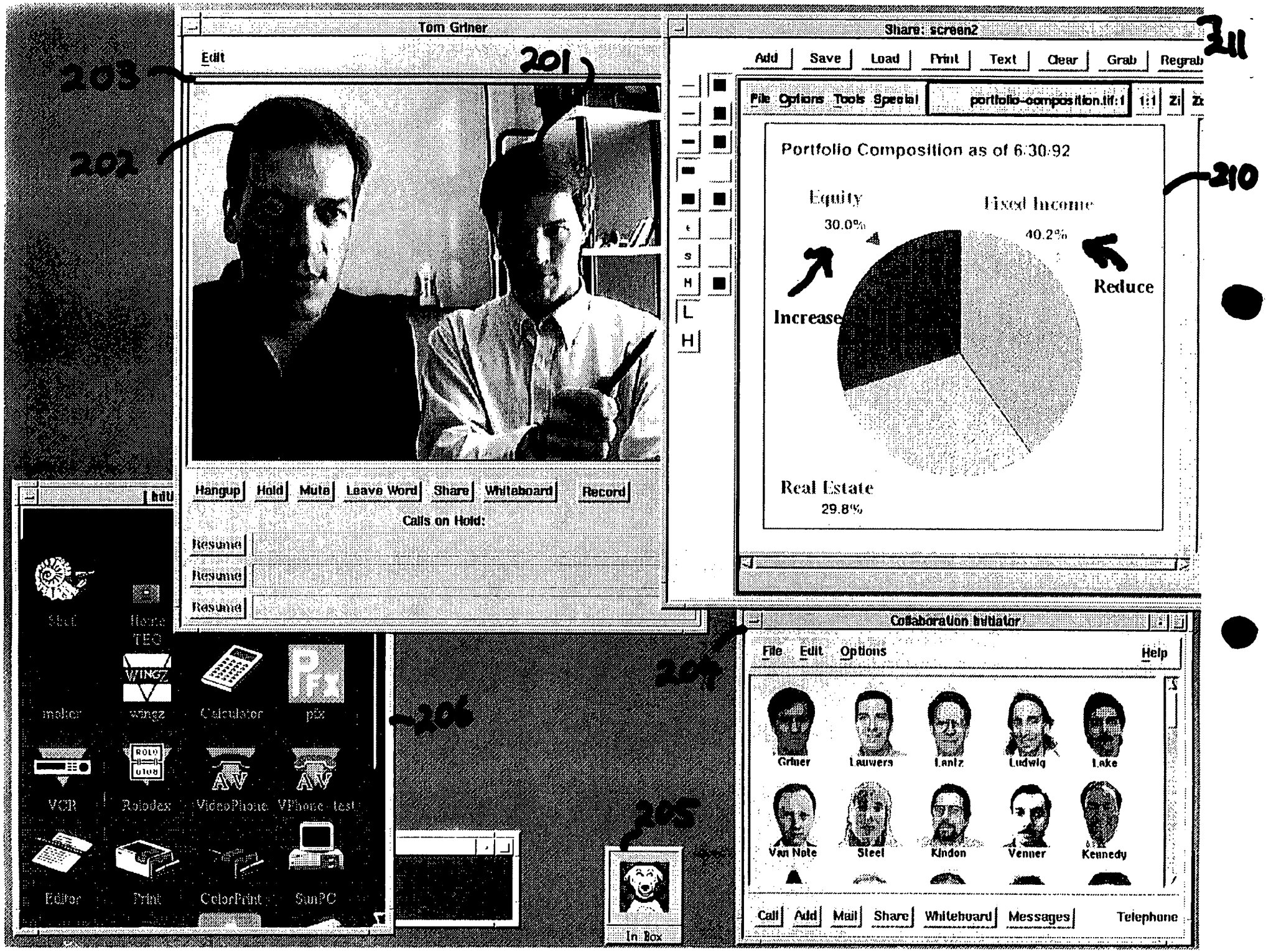

Tom Griner
Edit
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Record
Calls on Hold:
Resume
Resume
Resume
Share: screen2
Add
Save
Load
Print
Text
Clear
Grab
Regrab
File
Options
Tools
Special
portfolio-composition.tif:1
Portfolio Composition as of 6/30/92
Equity
30.0%
Fixed Income
40.2%
Real Estate
29.8%
Increase
Reduce
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone
In Box
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone
test
Editor
Print
ColorPrint
SunPC
201
202
203
204
205
206
210
211

FIGURE 3A

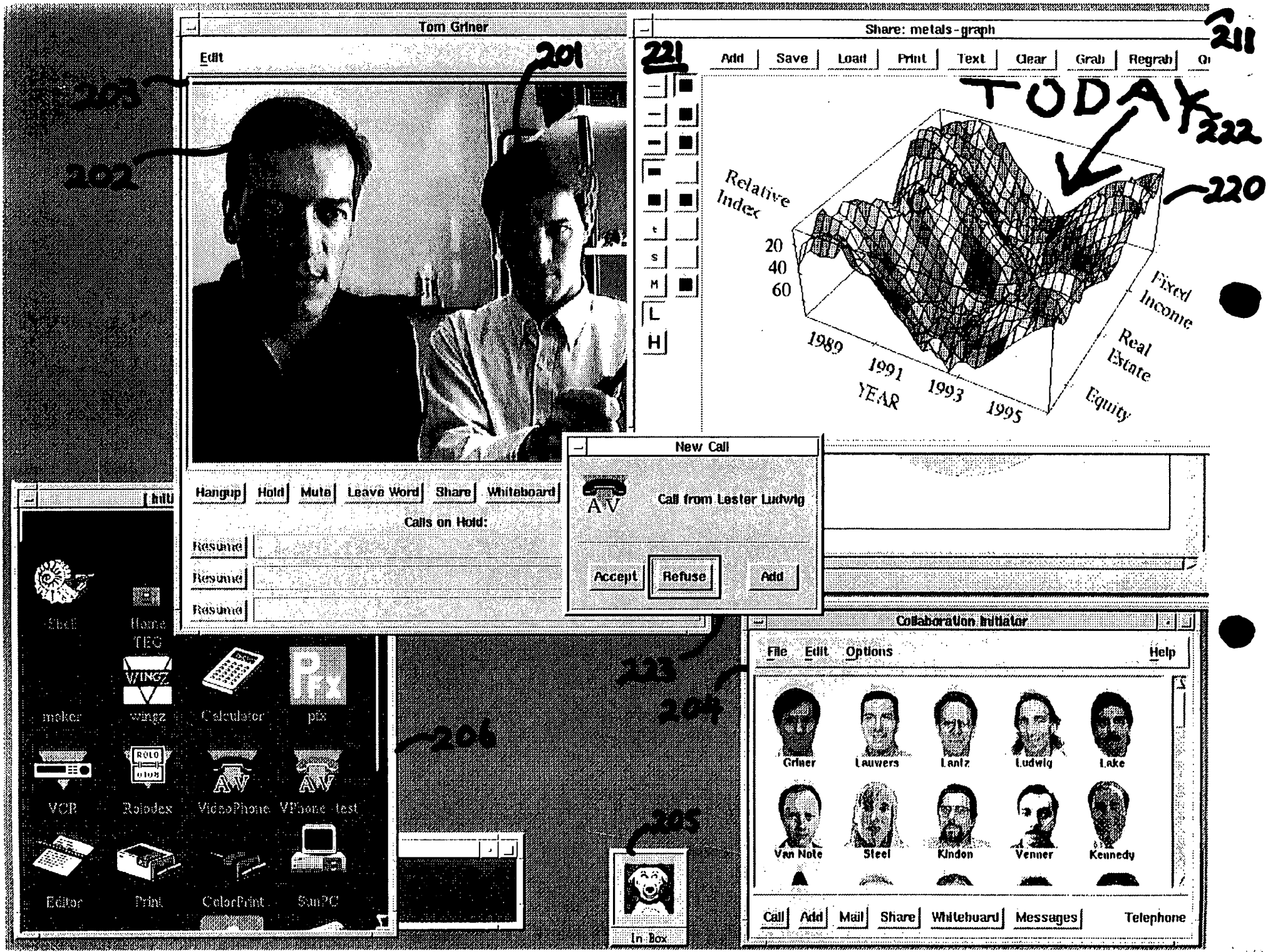

Tom Griner
Edit
201
203
202
Share: metals-graph
221
211
Add
Save
Load
Print
Text
Clear
Grab
Regrab
TODAY
222
220
Relative Index
20
40
60
1989
1991
1993
1995
YEAR
Fixed Income
Real Estate
Equity
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Calls on Hold:
Resume
Resume
Resume
New Call
Call from Lester Ludvig
Accept
Refuse
Add
Shell
Home TEO
WINGZ
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone test
Editor
Print
ColorPrint
SunPC
206
223
204
205
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 37

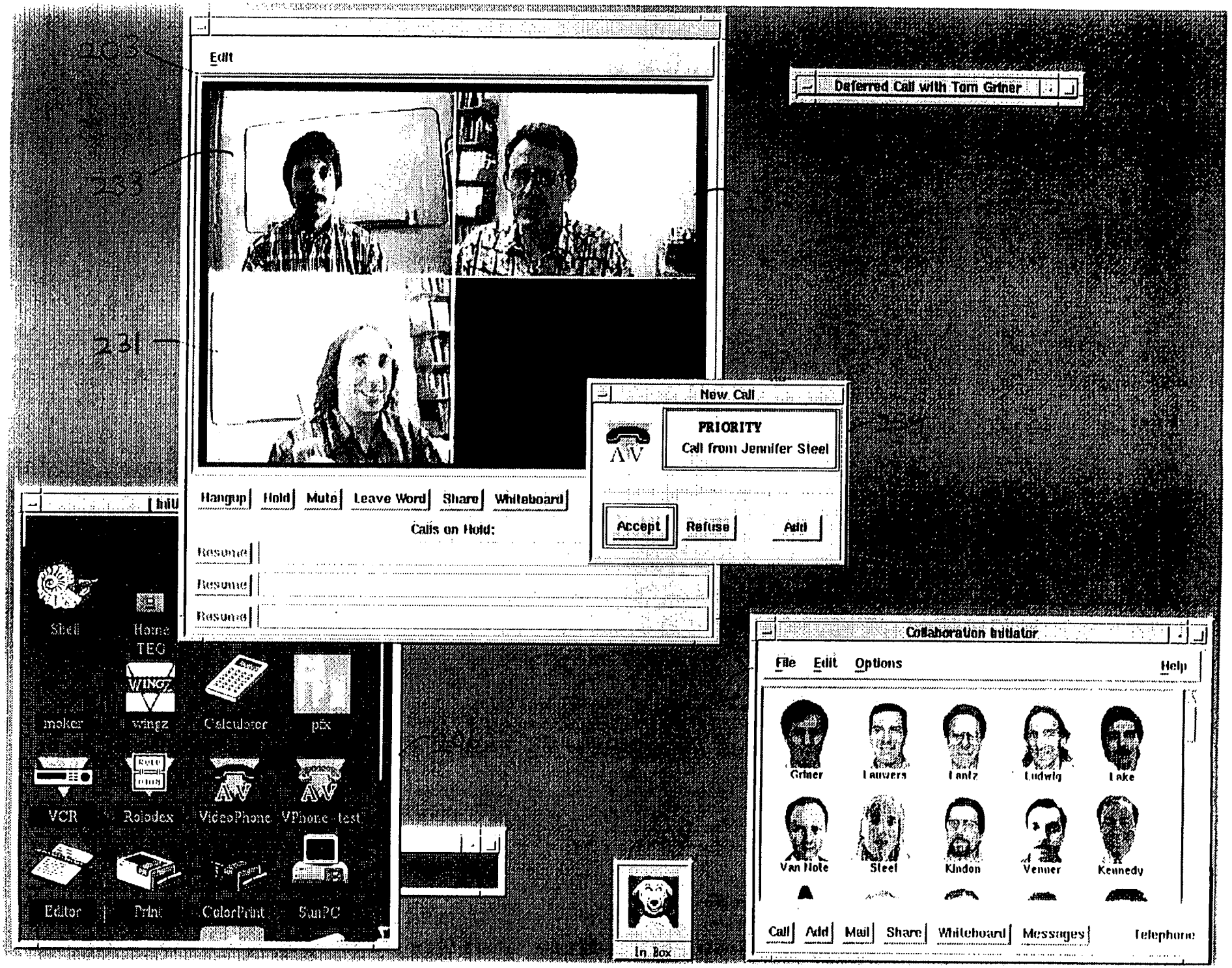

203
Edit
283
231
Deferred Call with Tom Griner
New Call
PRIORITY
Call from Jennifer Steel
Accept
Refuse
Add
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Calls on Hold:
Resume
Resume
Resume
Shell
Home TEG
maker
wingz
Calculator
pex
VCR
Rolodex
VideoPhone
VPhone-test
Editor
Print
ColorPrint
SunPC
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Hote
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 38

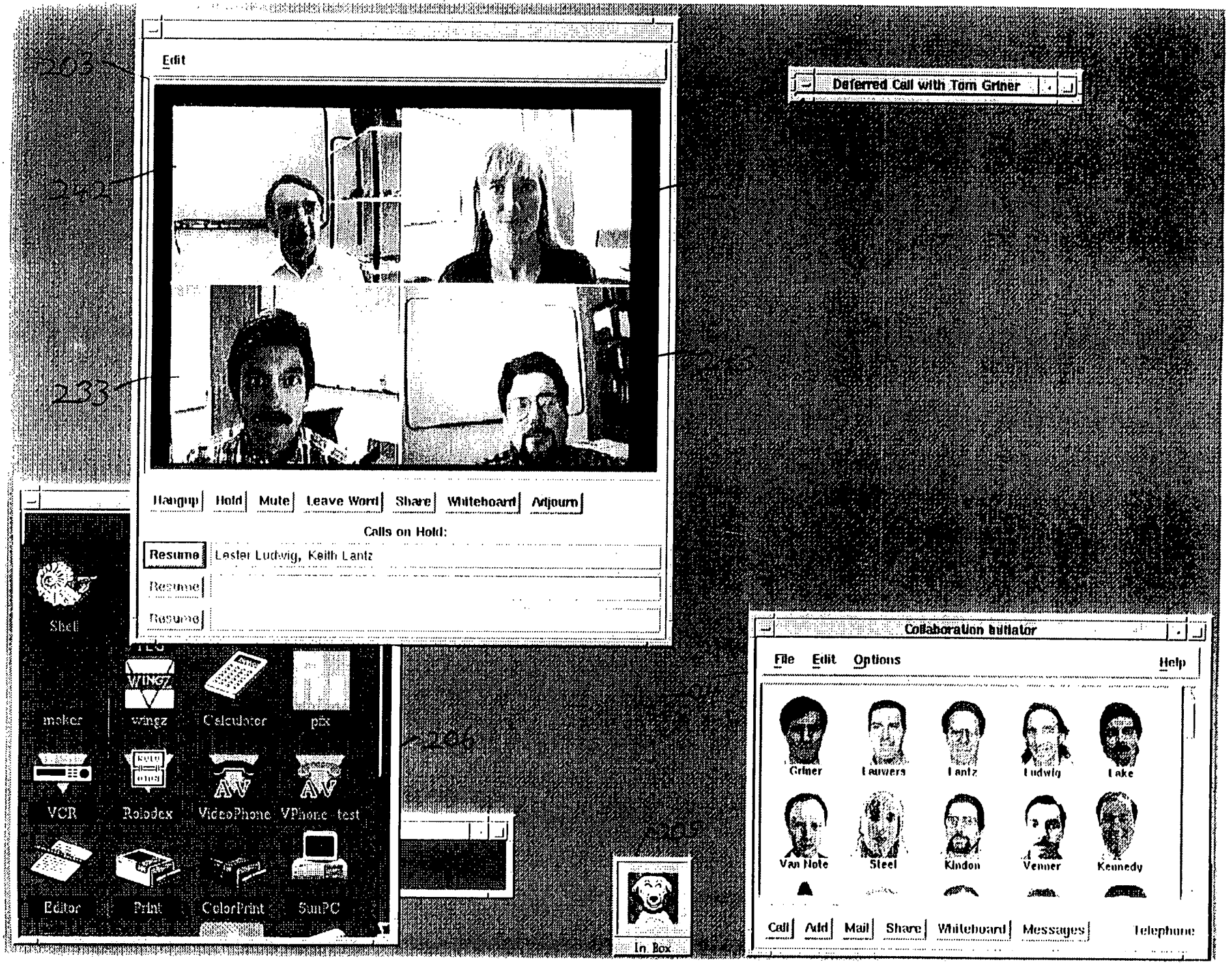

Edit
Deferred Call with Tom Griner
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Adjourn
Calls on Hold:
Resume
Lester Ludwig, Keith Lantz
Resume
Resume
Shell
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone test
Editor
Print
ColorPrint
SunPC
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauvers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 39

Edit
Deferred Call with Tom Griner
Share: stdin
Add
Save
Load
Print
Text
Clear
Grab
Regrab
Quit
File Options Tools Special
asset-mix.100dpi.tif:1
1:1
Zi
Zo
OK
NO!
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Calls on Hold:
Resume
Resume
Resume
Shell
Home TEC
meker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone-test
Editor
Print
ColorPrint
SunPC
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauvers
Lenlz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 40

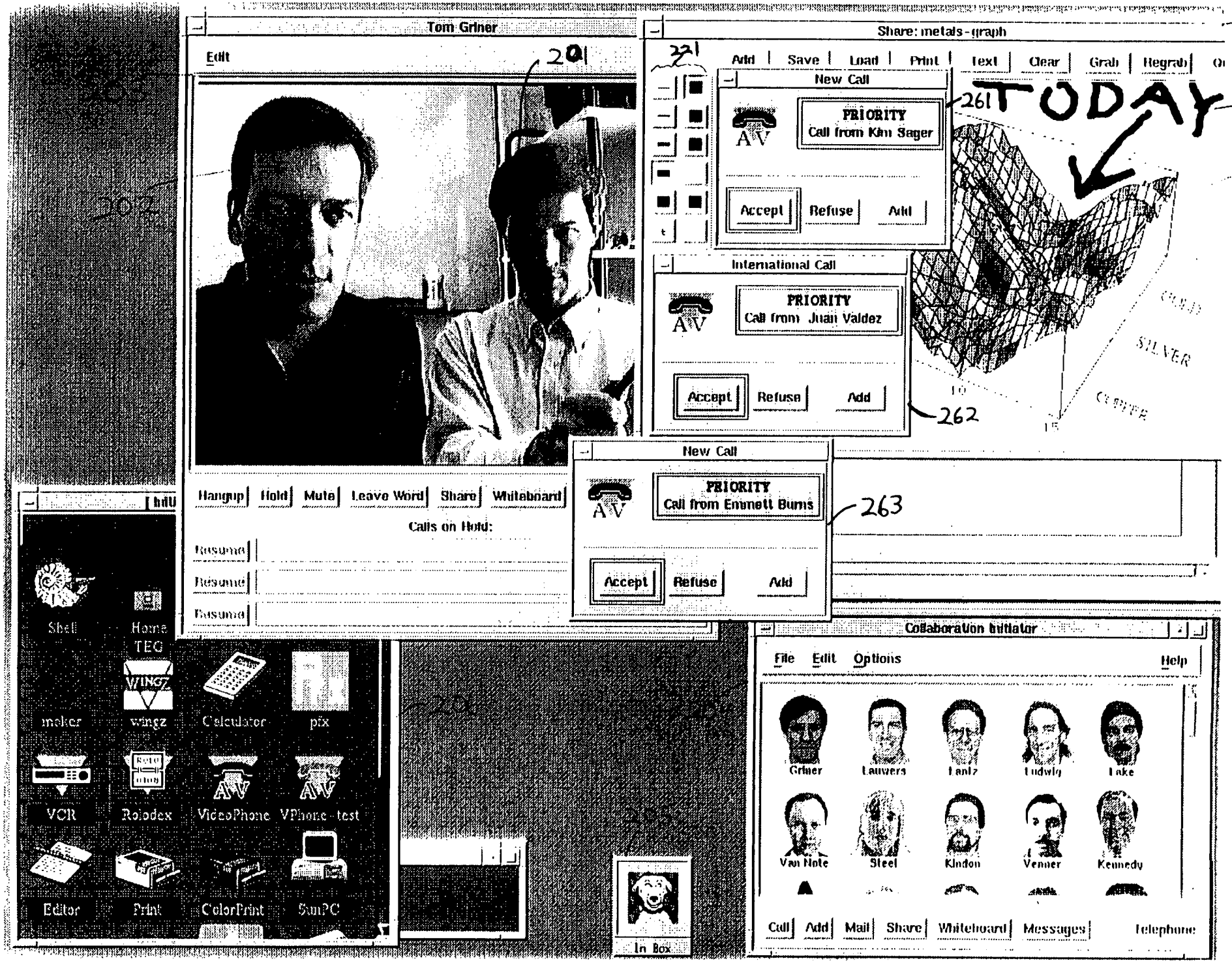

Tom Griner
Edit
201
Share: metals-graph
211
Add
Save
Load
Print
Text
Clear
Grab
Regrab
221
New Call
261
PRIORITY
Call from Kim Sager
Accept
Refuse
Add
TODAY
222
220
International Call
PRIORITY
Call from Juan Valdez
Accept
Refuse
Add
262
New Call
PRIORITY
Call from Emmett Burns
263
Accept
Refuse
Add
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Calls on Hold:
Resume
Resume
Resume
Shell
Home
TEG
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone-test
Editor
Print
ColorPrint
SunPC
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 41

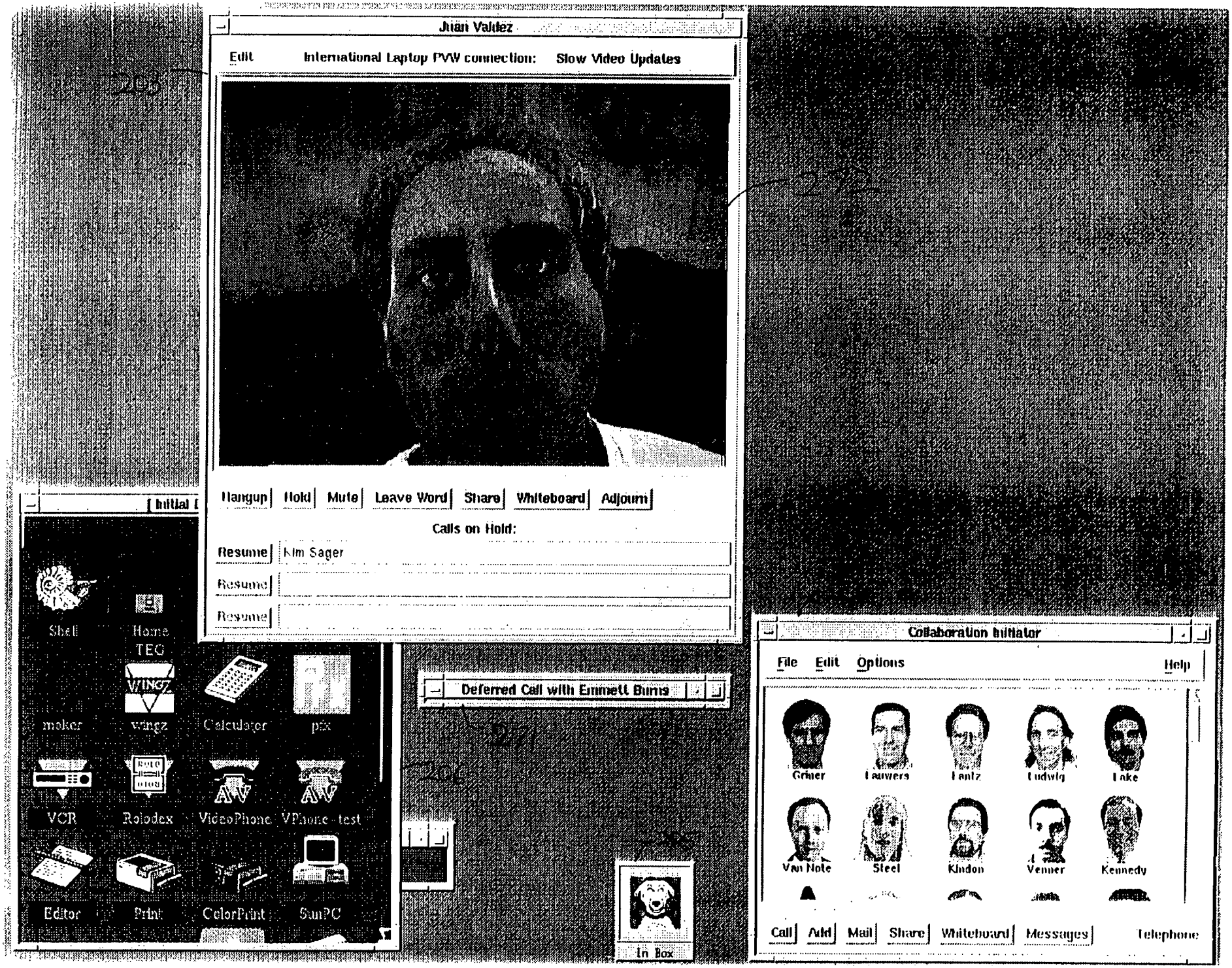

Juan Valdez
Edit
International Laptop PVW connection: Slow Video Updates
Hangup
Hold
Mute
Leave Word
Share
Whiteboard
Adjourn
Calls on Hold:
Resume
Kim Sager
Resume
Resume
Initial
Shell
Home
TEG
maker
wingz
Calculator
pix
VCR
Rolodex
VideoPhone
VPhone test
Editor
Print
ColorPrint
SunPC
Deferred Call with Emmett Burns
In Box
Collaboration Initiator
File
Edit
Options
Help
Griner
Lauwers
Lantz
Ludwig
Lake
Van Note
Steel
Kindon
Venner
Kennedy
Call
Add
Mail
Share
Whiteboard
Messages
Telephone

FIGURE 42